

**MINERALOGY.—KING'S COLLEGE,**  
LONDON.—Prof. TENNANT, F.R.S. will COMMENCE  
COURSE OF LECTURES ON MINERALOGY, with a view to  
facilitate the Study of GEOLOGY, and of the Application of  
Mineral Substances in the ARTS. The Lectures will be illus-  
trated by an extensive Collection of Specimens, and will begin on  
WEDNESDAY, October 7, at 9 o'clock, A.M. They will be con-  
tinued on each succeeding Wednesday and Friday, at the same  
hour. Fee, 2s. 6d. R. W. JELF, D.D., Principal.

**PRACTICAL PSYCHOLOGY.—UNIVER-  
SITY OF EDINBURGH.**  
During the ensuing Winter Session (1857-58), Dr. LAYCOCK  
proposes to arrange those of his Lectures on the Practice of Medi-  
cine which treat of MENTAL DISORDERS into a distinct  
Course of PRACTICAL PSYCHOLOGY, in which he will  
systematically develop Mental Science in its Application to all  
Morbid States of the Conscience. While this Course will con-  
stitute an integral part of Dr. Laycock's ordinary College Lectures,  
it will be so conducted that Students of Theology, Law, and Arts  
may attend it exclusively.  
University of Edinburgh, September 5, 1857.

**METROPOLITAN SCHOOL of SCIENCE,**  
applied to MINING and the ARTS.—The Prospectus for  
the ensuing Session, 1857-8, (containing information about the  
Lectures, Laboratory, &c.) is ready, and will be sent on  
application to TREMAYNE BEKES, Esq., Museum of Practical Geo-  
logy, Jermyn-street, London.  
ROBERT L. MURCHISON, Director.

**OWENS COLLEGE, MANCHESTER**  
(in connexion with the University of London).—Session  
1857-8.

The COLLEGE will OPEN for the Session on MONDAY,  
the 15th day of October next. The examinations, preliminary to ad-  
mission, hitherto required are for the present discontinued. The  
Session will terminate in July, 1858.

Principal.—G. GREENWOOD, B.A.  
For a statement of the courses of Instruction in the several  
Departments, see Advertisement in the *Athenæum* of Saturday  
the 6th instant.

Evening Classes are held for Schoolmasters and others not  
attending the College as Students.

The following Scholarships and Prizes have been founded for  
competition by Students of the Owens College, viz.:

The Victoria Scholarship, for competition in Classical Learning;  
annual value 50*l.*, tenable for two years.  
The Wellington Scholarship, for competition in the critical  
knowledge of the Greek Text of the New Testament; annual  
value 50*l.*, tenable for one year.

The Dalton Scholarships, viz. two scholarships in Chemistry,  
annual value 50*l.* each, tenable for two years; two scholarships in  
Mathematics, annual value 25*l.* each, tenable for not more than  
two years.

The Dalton Prizes in Chemistry are also intended to be offered.  
The Dalton Prize in Natural History, value 15*l.*, given an-  
nually.

For the better maintenance of discipline and superintendence of  
study out of class hours, arrangements are in progress according  
to which Parents and Guardians may place Students during the  
day under the superintendence of an officer appointed to that  
charge. Dinner will be provided within the College walls for such  
as may desire it.

Further particulars will be found in a Prospectus which may be  
had from Mr. Nicholson, at the College, Quay-street, Manchester.

JOHN P. ASTON, Solicitor and Secretary to the Trustees.  
St. James's Chambers, South King-street, Manchester,  
11th September, 1857.

**QUEEN'S COLLEGE, LIVERPOOL.**  
Incorporated with the University of London.

President of the Senate—WILLIAM BROWN, Esq. M.P.  
Vice-President—THOS. THORNEY, Esq. M.P.  
GEORGE HOLT, Esq.

#### FACULTY OF ARTS AND LAWS.

##### DAY CLASSES.

Logic and Ethics—Prof. the Rev. H. Griffiths, (Dean of the  
Faculty), Thursdays, from 11 to 12.  
Greek—Prof. Cameron, M.A., (Vice-Dean), Mondays, Wednesdays,  
and Fridays, from 4 to 5 P.M.  
Latin—Prof. Cameron, M.A., Tuesdays, Thursdays, and Satur-  
days, from 4 to 5 P.M.  
Mathematics—Prof. Elliot, Mondays, Wednesdays, and Fridays,  
from 9 to 10 A.M.  
English Language and Literature—The Rev. Prof. Cranbrook,  
Fridays, from 3 to 4 P.M.  
French—Prof. Husson, Wednesdays, 3 to 4 P.M., and Saturdays,  
12 to 1 noon.  
German—Prof. Retzsch, Ph.D., Tuesdays and Thursdays, 12 to 1  
noon.  
Modern History—Prof. MacLiven, Wednesdays, 12:30 noon to  
1:30 P.M.  
Natural Philosophy—Prof. Elliot, Mondays, 12:30 noon to 1:30 P.M.  
Chemistry—Prof. Hamilton, F.R.S., F.R.A.S., Tuesdays and  
Thursdays, 12 A.M. to 4 P.M.  
Botany—Prof. Archer, Mondays and Fridays, 4 to 5 P.M.

##### MORNING AND EVENING CLASSES.

Logic and Ethics—Thursdays, 8 to 9 P.M.  
Greek—Tuesdays, Thursdays, and Saturdays, 7 to 8 A.M.  
Latin—Mondays, Wednesdays, and Fridays, 7 to 8 P.M.  
Mathematics—Mondays, Wednesdays, and Fridays, 8 to 9 P.M.  
English Language—Mondays, 8 to 9 P.M.  
French—Wednesdays, 8 to 9 P.M.  
German—Fridays, 8 to 9 P.M.  
Hebrew—Tuesdays, 7 to 8 P.M.  
Ancient History—Tuesdays, 8 to 9 P.M.  
Modern History—Wednesdays, 7 to 8 P.M.  
Chemistry—Thursdays, from 8 to 9 P.M. Practical Class, on Tues-  
days and Thursdays, from 7 to 9 P.M.  
Animal Physiology—Tuesdays, from 8 to 9 P.M.

The Course of Study embraces the Subjects of the Matriculation  
Examination at Trinity College, Dublin.

The Session commenced on the 1st instant.  
Prospectuses and further information may be obtained on ap-  
plication to

Mount-street. ASTROP CARRIS, Secretary.

## MANCHESTER NEW COLLEGE,

LONDON.

### THE AINSWORTH SCHOLARSHIP.

The COMMITTEE of MANCHESTER NEW COLLEGE offer to  
those of its Students who shall obtain a Gold Medal in the  
M.A. Examination at London University, a SCHOLARSHIP of  
ONE HUNDRED POUNDS. Competitors for this Scholarship  
must graduate as Students of Manchester New College either on  
taking their Bachelor's or Master's Degree. If the former, they  
must have previously spent not less than two years at Manchester  
New College; if the latter, not less than one year.

The Ainsworth Scholarship is open to any Lay Student of Uni-  
versity College who has previously enrolled himself as a Student of  
Manchester New College, gone through his Undergraduate course  
under the direction of the Principal of that College, and attended  
the classes for religious and ethical instruction which it provides  
for its Lay Students. Subject to these limitations, the Scholarship  
is open to every Gold Medalist at the Examination for the  
Master's Degree in any one of the branches of Classics, Science or  
Philosophy.

Payment will be made to successful competitors in two yearly  
instalments of Fifty Pounds. The sum so received will be con-  
tinued to the contrary is given. Two years' notice will be  
given previous to its withdrawal.

Further particulars respecting the Scholarship and the plans of  
study at Manchester New College may be obtained on application  
to Robert D. Darbishire, Esq., B.A., one of the Secretaries of the  
College, Brown-street, Manchester; or to Rev. J. Taylor, B.A.,  
Principal of the College, at University Hall, Gower-square,  
London.

September, 1857.

## UPPER CANADA COLLEGE,

TORONTO, CANADA.

The Senate of the University of Toronto having established a  
MASTERSHIP in Upper Canada College, with a special view to  
instruction in the highest branches of the ENGLISH LANGUAGE,  
GRAMMAR, and its LITERATURE, Candidates are invited to  
forward their testimonials to the Provincial Secretary, Toronto,  
on or before the 1st of December next.

The emoluments are as follows:—Salary, 300*l.* Halifax currency,  
with his share of the fees, amounting at present to about 50*l.*,  
and a free house. 50*l.* currency will be allowed for passage and outfit.  
Toronto, 27th August, 1857.

## ARCHITECTURAL PHOTOGRAPHIC

ASSOCIATION.

President—C. R. COCKERELL, Esq. R.A.

Trustees—P. HARDWICK, Esq. R.A.; W. TITE, Esq. M.P.;

SYDNEY SMIRKE, Esq. W.A.

Treasurer—THOMAS H. WYATT, Esq.

The Committee are desirous of completing the List of Subscribers  
for 1857, now between 400 and 500 in number, as early as possible,  
in order to estimate the extent to which they may avail them-  
selves of the services of eminent Photographic Artists at Home  
and Abroad, with whom they are making arrangements. They  
calculate upon being able to issue to Subscribers, for each Guinea  
subscribed, at least nine or ten Photographs, averaging say 19 in.  
by 10 in., which may be chosen from a considerable number of fine  
subjects.

The Prospectus and Rules will be forwarded on application.

Post-office orders payable at Old Cavendish-street, W.

ROBERT HESKETH, Hon. Sec.

25, Wimpole-street, W.

## MR. KIDD'S LECTURES FOR THE WORKING CLASSES.

MR. WILLIAM KIDD has received an INTI-  
MATION that the SUBJECTS of his LECTURES address  
themselves powerfully and peculiarly to the industrious ARTI-  
SAN, MECHANIC, and DOMESTIC SERVANT of every Class, a  
significant Hint that the best interests of EMPLOYERS would  
be consulted by making the said Lectures POPULAR among the  
EMPLOYED and their Families, both at Home and Abroad, and  
not this Hint largely suggestive of good?—Hammersmith, Sept. 19.

## MR. KIDD'S LONDON AND PROVINCIAL LECTURES.

MR. WILLIAM KIDD'S NEW LECTURES  
for 1857-8, comprise Choice Subjects on Natural History,  
Natural Science, Natural Philosophy, Natural Magic, &c. &c.  
Ethics, Things in General, and Things in Particular. All good-  
naturedly resolving themselves into the True Philosophy of  
Every-day Life.—Terms for One Lecture, or a Course, sent (with  
the Circular) post free.—New-road, Hammersmith.

### SYNOPSIS OF LECTURE ON

## MADEIRA AND ITS CLIMATE,

By the Rev. ALEX. J. D. DORREY,

Chaplain to the English Church, Beccos dos Arrabais, Funchal  
Rivers, Animals, Vegetables, Minerals, Native Population, Nobil-  
ity, Gentry, Peasants, Manners and Customs.  
2. Climate, Temperature, Dryness, Winds, Comparison with  
Egypt, Nice, Malaga; Cases of Diseases Alleviated or Cured;  
Cases that should be sent; Political Economy in respect to the  
Climate of Madeira; its Advantages and Disadvantages.  
3. Voyage out, Expenses, Outfit, Boarding-schools, Furnished  
Houses, Servants, Amusements, and General Summary.  
Secretaries of Institutions desiring this Lecture may apply at  
14, Manchester-street, W., on 22nd of September. Terms, 5 Guineas.

## THE ROYAL HOSPITAL, for the Permanent

Care and Comfort of those who by Disease, Accident, or  
Deformity, are hopelessly disqualified for the Duties of Life.  
Instituted July 1854, at the Mansion House.

The Right Hon. the LORD MAYOR is in the Chair.

The SEVENTH ELECTION, and Third Annual Meeting of  
the Charity, will occur on THURSDAY, the 26th of November  
next, at the London Tavern, Bishopsgate-street.

The Poll will commence at Twelve o'clock and close at Two  
precisely.

Persons desirous of making application should do so by the 24th  
instant.

Cases on Payment are taken irrespective of the elections, and  
may enter at any time. Information cheerfully supplied at the  
Office, and Subscriptions and Donations thankfully received.  
Post-Office orders are made payable to the Sub-Secretary, Mr.  
FREDERICK ANDREW. Office hours, from Ten till Four o'clock.

Office, 10, Foultry. ANDREW, D.D., Provisional Secretary.

12th September, 1857.

**GUYS', 1857-8.—THE MEDICAL SESSION**  
COMMENCES in OCTOBER.—THE INTRODUCTORY  
ADDRESS will be given by OWEN REES, M.D. F.R.S., on  
THURSDAY, the 1st of October, at Two o'clock.

### MEDICAL OFFICERS AND LECTURERS.

Consulting Physician—Richard Bright, M.D. F.R.S.  
Physicians—Thomas Addison, M.D.; G. H. Barlow, M.D.; H. M.  
Hughes, M.D.; Owen Rees, M.D. F.R.S.  
Assistant Physicians—W. W. Gull, M.D.; S. O. Habershon, M.D.;  
S. Wilks, M.D.

Surgeons—Edward Cook, Esq.; J. Hilton, Esq. F.R.S.; J. Bir-  
ckett, Esq.

Assistant Surgeons—Alfred Poland, Esq.; J. Cooper Forster,  
Esq.; T. Bryant, Esq.

Obstetric Physicians—J. C. W. Lever, M.D.; Henry Oldham,  
M.D.

Surgeon-Dentists—T. Bell, Esq. F.R.S.; J. Salter, Esq.

Surgeons of the Eye Infirmary—John F. France, Esq.

Alfred S. Taylor, M.D. F.R.S. Frederick Payr, M.D.  
Charles Johnson, Esq. William Odling, M.B.

Burton Brown, M.B. C. T. Maudslayi, Esq.

Gentlemen desirous of becoming Students must give satisfactory  
testimony as to their Education and Conduct. They are required  
to pay 40*l.* for the first year, 40*l.* for the second year, and 10*l.* for  
every succeeding year of attendance; or 100*l.* in one payment  
entitles a Student to a Perpetual Ticket.

Dressers, Clinical Clerks, Ward Clerks, Obstetric Residents, and  
Dressers in the Eye Wards, are selected according to merit from  
Surgeons who have attended a second year. A resident  
House-Surgeon is appointed every six months from those Students  
who have obtained the College Diploma.

Mr. Snooks, Apothecary to Guy's Hospital, will enter Studen-  
tists, and give any further information required.

Guy's Hospital, September 3rd, 1857.

## LONDON HOSPITAL MEDICAL and

SURGICAL COLLEGE, MIL LANE.

The next WINTER SESSION will COMMENCE on THURSDAY,  
October 1st, 1857, when the INTRODUCTORY LECTURE  
will be delivered by Mr. WORDSWORTH, at 3 P.M.

Perpetual fee, qualifying for the examinations at the London  
University, Royal College of Surgeons, and Apothecaries' Hall, 5*l.*  
guineas, payable in two instalments of 2*l.* 5*l.* each, at the  
commencement of the first two sessions of attendance.

Perpetual fee for the Lectures alone, 50*l.*

Students can make special entries to Lectures or Hospital  
Practice.

Particulars and prospectuses can be had on application  
to Dr. Parker, Hon. Secretary, 22, Finsbury-square, or at the  
College.

## THE MIDDLESEX HOSPITAL.—The WIN-

TER SESSION will OPEN on THURSDAY, October 1,  
with an Introductory Address at 8 o'clock P.M.

The Hospital contains upwards of 300 beds, of which 185 are for  
Surgical, and 125 for Medical Cases. More than 1,600 out-patients  
were attended during the past year.

Fee for eighteen months' Medical, and three years' Surgical,  
Practice, 50*l.*

Fee for attendance on the Hospital Practice and Lectures re-  
quired by the College of Surgeons and Apothecaries' Company, 7*l.*

This sum may be paid by instalments of 30*l.* at the beginning of  
the First Session, 50*l.* at the beginning of the Second Session, and  
15*l.* at the beginning of the Third Session.

For further information, or Prospectuses, apply to Dr. Freer,  
Medical Officer of the School; to Mr. De Morgan, Treasurer to the  
School, at the Hospital daily, from One to Two o'clock; to Dr.  
Corle, the Resident Medical Officer; or to Mr. Sheddin, the Secre-  
tary to the Hospital.

## THE SCHOOLS OF ART and DRAWING at

SOUTH KENSINGTON, and in the following Metropolitan  
Districts, will RE-OPEN on the 1st of October:—

1. Southfields—Crispin-street, Spitalfields.
2. Finsbury—William-street, Wimpole-square.
3. St. Thomas—Chancery-lane, Gower-street.
4. Rotherhithe—Grammar School, Deptford-road.
5. St. Martin's-in-the-Fields—Long-acre.
6. Lambeth—St. Mary's, Prince-street.
7. Hampstead—Dispensary Building; and 37, Gower-street,  
Bedford-square, (for Female Students only).

For Prospectuses, Terms, &c. apply at the respective Schools.

By order of the Committee of Council on Education.

## FORTIFICATION, MILITARY DRAWING

and LANDSCAPE PAINTING.—MR. FAHEY, whose  
Pupils have taken the highest Honours at the Military Colleges  
of Woolwich and Addiscombe, has by recent arrangement a por-  
tion of time disengaged. For Terms, address, 25, Drayton-grove,  
Old Brompton, S.W.

## THE GOVERNESSES' INSTITUTION, 34,

1. Soho-square.—Mrs. WAGHORN, who has resided many  
years abroad, respectfully invites the attention of the Nobility,  
Gentry, and Clergy of the Empire to her Register of English and  
Foreign GOVERNESSES, TEACHERS, COMPANIONS, TU-  
TORS, and PROFESSORS. School Property transferred, and  
Pensions awarded in England, France, and Germany. No charge  
to Principals.

## KENSINGTON HALL COLLEGIATE

INSTITUTION FOR LADIES, North End, Fulham.

Lady Superintendent—Mrs. JOHNSON.

Director of Education—Mr. JOHNSON.

The object of this Institution is to provide Resident Pupils with a  
complete and systematic course of Education and Instruction,  
upon a plan that combines the advantages of a School and a Col-  
lege, with more than usual attention to individual peculiarities,  
and to the use as well as elegant acquirements of the English  
Language.

The Lecture arrangements include full and comprehensive  
Courses of English Literature, Mental Philosophy, and Natural  
Science, Natural History, and the Application of the Principles of  
Domestic Economy and the Preservation of Health.

Michaelmas Term begins September 18, 1857.

## GERMAN, French, Italian

Piccadilly.—Dr. ALTSCHEL, a German

Reading Book, &c. Examined by the

olog. S. Prof. Education.—T.W. The

the same lesson or otherwise without

at the Pupils or at his own House, &c.

his PRIVATE Lessons and select

tion in English, French, Italian, &c.

the Universities, Army and Civil Service

**SURBITON HOUSE, CHAMPION HILL, CAMBERWELL.**—The **MISSES DRANSFIELD** beg to inform their Friends that a **VACANCY** has unexpectedly occurred in their Establishment. The number of Pupils limited to 16. References kindly permitted to the Rev. D. Moore, M.A., Incumbent of St. Paul's Church, Camberwell; the Rev. H. McWilliam, B.D., Private Tutor, Haileybury College, Herts; and Canon Residentiary of St. Paul's.

## LADIES' COLLEGE, 47, BEDFORD-SQUARE

The CLASSES will BEGIN for the Session 1857-1858 on **THURSDAY, October 15**, under the following Professors:—  
Rev. J. Beines, M.A. Oxon.—Biblical Literature, Latin.  
T. S. Haynes, Esq., LL.B.—English Language and Literature.  
F. S. Carr, Esq.—Drawing.  
Richard Cull, Esq., F.S.A.—Reading Aloud.  
James Heath, Esq., B.A. Lond.—Ancient History.  
Prof. Hermann, Ph.D.—German Language and Literature.  
Prof. Hullah—Vocal Music, Harmony.  
(Vacant)—Natural History.  
Gottfried Kinkel, Ph.D.—History of Fine Art, Geography.  
Rev. Walter Mitchell, M.A. Cantab.—Mathematics, Natural Philosophy.  
Mons. Adolphe Ravn—French Language and Literature.  
(Vacant)—Modern History.  
Signor Valletta—Italian Language and Literature.

**FEES.**  
For Pupils taking the entire Course of Study, 18l. 18s. a-year, or 7l. 7s. a Term. Entrance Fee, 1l. 1s.  
For Pupils attending two or more Classes, 1l. 11s. 6d. a Term for Classes meeting twice a week, and 1l. 1s. for those meeting once.  
For Pupils attending one Class only, 9l. 2s. a Term for Classes meeting twice a week, and 1l. 11s. 6d. for those meeting once.

The **SCHOOL for JUNIOR PUPILS** will RE-OPEN on **THURSDAY, October 15**. The Fees are, 5l. 5s. a Term for Pupils under, and 6l. 6s. for those above, fourteen.  
Prospectuses may be had on application at the College.

JANE MARTINEAU, Hon. Sec.

**UNIVERSITY OF LONDON.—B.A. EXAMINATION.**—An M.A. of the University of London PREPARES G-nlemen for Pass and Honours. Examinations in Mathematics and Natural Philosophy.—J. B., 50, Stanhope-street, Hampstead-road.

**A MARRIED CLERGYMAN, Double First Classman at Oxford, and formerly Fellow and EXAMINER AT THE INDIA HOUSE,** resides at the Rectory, 7 miles from London, a LIMITED NUMBER of PUPILS for College, the Army, India, &c. Terms moderate, and high reference.—Address Rev. Dr. GILES, Perivale Rectory, near Harrow.

**TUITION.—A Married M.A., of Trinity Coll. Cambridge, (Senior Optician and First Classman),** whose Works are used in our best Schools, has TWO or THREE VACANCIES for PUPILS, to whom he can offer an excellent education and most comfortable home. Entire charge is taken of Children whose parents are resident abroad.—Address D. G., at Mr. Mitchell's Publisher, Red Lion-court, Fleet-street, E.C.

**MISS THOMAS, 9, Devonshire-street, Portland-place, London,** continues to RECEIVE PUPILS attending the Queen's College, Harley-street, London, as well as Young Ladies desiring to take Private Lessons from London Professors.

**TUTOR.**—The Advertiser is desirous of meeting with a Gentleman (Graduate of Cambridge), who could devote two or three hours in the Evening TO READ with his Son in MATHEMATICS and the CLASSICS.—Address J. N., Mr. Baxter's, Stationer, Cockspur-street, Charing Cross.

**CLASSICAL TUTOR WANTED.**—A Gentleman, who is desirous to Matriculate shortly at Oxford, desires a TUTOR in CLASSICS and MATHEMATICS. Two Lessons per week (given at Hyde Park) required.—Address, stating Terms, and whether a Member of the University, A. B., Mr. Raveuscroft, Wig-maker, 3, Serle-street, Lincoln's Inn.

**TO CATHOLIC FAMILIES.**—A Young Lady, aged 17, accustomed to TUITION, competent to TEACH Children French acquired in a Continental Convent, Music, and the usual Requirements for Young Pupils, is desirous of AN ENGAGEMENT, in a respectable Family, or as ARTICLED PUPIL, where her Assistance would be considered equivalent for the advantages of superior Masters. The best references given.—V. V., Adams, News Agent, Parliament-street.

**MR. HOLIDAY** begs to inform his Pupils and Friends that he has RETURNED TO TOWN, and RESUMED HIS PROFESSIONAL ENGAGEMENTS.  
13, Southampton-street, Fitzroy-square,  
Sept. 14, 1857.

**MR. B. H. SMART** acquaints his Friends that he has still continued to INSTRUCT CLERICAL and other PUPILS IN ELOCUTION, to meet Classes in Families and Schools for English generally, and to engage for Public Readings and Lectures.—37, Wyndham-street, Bryanston-square, W.

**REMOVAL.—MONS. F. DE PORQUET,** Author of 'Le Trésor,' after an absence of Fourteen Years from Tavistock-street, has RETURNED TO TOWN, where he continues giving LESSONS on his Popular Method to Schools, Institutions, and Families.—Scholastic Agency, Office hours from 11 to 4.  
\* \* \* 14, Tavistock-street, Covent-garden, W.C.

**FOREIGN AND ENGLISH SCHOLASTIC AGENCY**—Families and Schools requiring ASSISTANTS of either Sex, are invited to apply to **Mons. F. DE PORQUET,** Author of 'Le Trésor,' &c. 14, Tavistock-street, Covent-garden. Office hours, 11 to 4.

No connexion with any other house in the same locality.

**CLASS for THOROUGH BASS.**—Two Ladies, Pupils of Mr. C. Lunn and Mr. Lunn, will commence an EVENING CLASS especially adapted to young Miss Teachers for the Study of THOROUGH BASS, on the 1st of October. Terms, 1l. 1s. for Lessons.—Apply to Miss Ls Dixie, 10, Southampton-street, Fitzroy-square.

**TEACHERS.**—Principals of Schools and of Families can have a choice of selected Teachers, Tutor, Governess, &c. seeking Engagements, by procuring WYAND'S WEEKLY SCHOOL LIST, prior 1d., which ADVERTISER all School Transactions wanted to be effected. Published every Monday, at the London Educational Repository, 471, Oxford-street.

**NINEVEH ANTIQUITIES.—A. HAYS** begs to inform the Nobility and Gentry that he has completed Three Models of the most ancient and interesting in the British Museum. The Models are reduced to a scale so that they form beautiful and suitable Ornaments for the Drawing-room.

The Bust of Nimrod, the Mighty Hunter..... 6 in. high..... £10 6  
The Winged Human-headed Bull..... 8 in. square..... 5 0  
The Winged Human-headed Bull..... 8 in. square..... 5 0  
N.B. Each Model is executed in fine Porcelain.  
Orders to be addressed to Mr. A. Hays, No. 9, Elizabeth-street, Hans-place, St. James-street, London.

## PRIZES for ESSAYS on MARINE ALGÆ.

TWO PRIZES of 50l. and 20l. respectively, are offered for the two best and approved ESSAYS on the APPLICATIONS of the MARINE ALGÆ (Sea-weeds) and their Products, as Food or Medicine for Man and Domestic Animals.  
The Essays, with accompanying Specimens, illustrating the best modes of collecting, preparing, and preserving the nutritive Species in a state fit for Use, must be sent to the Society of Arts, London, by the 31st March, 1858.  
For conditions apply (pre-paid) to the Secretary of the Society of Arts, Ad-phi, London, W.C.

**TO AUTHORS.**—ROBERT HARDWICKE, PUBLISHER and PRINTER, 29, Duke-street, Piccadilly, is prepared to undertake the Printing and Publishing of Travels, Poems, Essays, Pamphlets, &c. on the shortest notice and most reasonable terms. From the central position of his Establishment, and the large sale of some of his recent Publications, he is enabled to place all Works intrusted to him in the channels most likely to insure success.—Hardwicke's 'Instructions to Authors' sent by post on receipt of a stamp.

## IMPORTANT TO AUTHORS.

**J. F. HOPE, 16, Great Marlborough-street,** by his new Publishing Arrangements, charges no Commission for Publishing Books printed by him until the Author has been repaid his original outlay of some of his Works intrusted to him are Printed in the very best style, and at Prices far below the usual charges. AUTHORS ABOUT TO PUBLISH will find it much to their advantage to apply to him for SPECIMENS, ESTIMATES, and ALL PARTICULARS, which will be forwarded gratis by return of post.

**A FRENCH GENTLEMAN, at Lyons,** has a VALUABLE COLLECTION of INSECTS, principally collected in South America, in localities the least known. It contains about 5,000 Species, and 1,000 Individuals (Coleoptera Exotica). He wishes to dispose of the Collection on reasonable terms. Any Society or Amateur who would wish to possess it, will please to address to F. S., care of Mr. Bosworth, 215, Regent-street.

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*Gleanings among the Castles and Convents of Norfolk.* By Henry Harrod. (Norwich, Muskett.)

NORFOLK is a sterile, but to an antiquary or an epicure a far from unsavoury, county. There is scarcely a mile in its circuit of 220 which is not either watery, runic, or traditional,—which is not the haunt of unusual fish or the *habitat* of remarkable fowl. It is pre-eminently a land of broads and meres, of grassy holms and sandy dunes, and obsolete dykes or holls, of alder-feeding rivers and heron-beloved fords, of long-unfurnished convents, and castles huge and grim and square, where “the brede of coney” still skip in the moonlight, to the decay of the old walls. Pre-eminently, too, is the county one of famous judges, and sailors, and rebels, and gypsies, and murderers,—of saints of olden and sinners of modern story,—the soil and the air favourable to clear complexions and liberal doctrines,—to the cultivation of music and letters and festive philanthropy. Pre-eminently, too, is it a county of camps and water-mills, and towers and shrines, which attract pilgrims no less now for their relics of paint and herring-bone than in ancient days they did owing to the odour of the Virgin’s milk, or the curative virtue of St. Pyggy-wiggy’s bones. Where is the county that has ruder names and more dissonant terminology, the etymology of whose towns is as incontestably Saxon, as its camps are Roman, its battle-grounds Danish, and its castles Norman?

Broad patches of Daneswort tell, it is said, how freely Danish blood was spilt in East Anglia; and for those that love them there are traditions and legends vague enough of Knoud and Rhoud, of King Waldeus, of Regner Lodbrog, of Harold and of Sweyn. There is Redeham, where the Dane was driven from home in a storm when *hawking*, and Caistor Castle where he was imprisoned and slain;—there is Cerdic’s land, and St. Benet’s holm, and St. Edmund’s cliff, and a castle where that diligent saint got the Saxon Psalms off by heart;—there is the “quiet town” of Lynn, with its memories of John, and Eugene Aram;—there is Caistor, the seat of a Sir John Falstaff, *sans peur et sans reproche*;—there is Buckenham, the lords of which were cupbearers to the King when he was crowned, and Carleton which was held on condition of a great hundred of herring, “made up in fourteen pies well baked and seasoned,” being presented to the King;—there is a village which gives name to worsted, and the quaint town at the mouth of the Yar, with its Dutch canal-like streets, its shady wharfs and quaint rows, which the Author of ‘David Copperfield’ has a copyhold interest in. Then there are tales of burly abbots jammed in at convent windows in their hurry to escape earthly conflagration,—parchments of Lord Bishops terribly imprecative on account of the disappearance of a prime bit of live venison,—notes of kings and queens who came down to eat monstrous pies, and with an eye to rent in advance, or a survey of the gleaming buffets or plate-chests of their lieges,—sights into vast silent kitchens, dusty halls, and empty larders, with grim speculation into royal dungeons and keeps, and a gaze into the burial-place of all the Bigods, and Mowbrays, and Howards. And who has not heard of the saffron and the fair shrine of Our Lady of Walsingham, with its golden-topped towers piercing the sky, built by Richoldie, the mother of Geoffrey de Favraches, as doubtful tradition relates—

A thousand complete sixty and one,  
The type of St. Edwards, King of this region,  
rivalling in attractiveness and wealth, if Roger Ascham be credible, the excellency of the Three Kings at Cologne—a shrine even now beautiful in the dust? Among its flower-tufts, its light arches, and shapely windows, “arrored with angels’ handys,” being more open than when Erasmus described it “with open doors and open windows, and near at hand is the ocean, the Father of the winds.” The spot where the Virgin dwelt was “a small chapel made of wainscot, admitting the devotees on each side by a narrow little door. The light is small, indeed scarcely any but from the wax-lights. The fragrance most grateful. For jewels and gold and silver, a mansion of the gods.” A bow-shot off were “tweyne wells,” where the foundress prayed, and “a chapel full of wonders.”

Of the rare sights to see in the way of offerings were a silver equestrian statue of Bartholomew Lord Burghersh, and a kneeling statue of Henry the Seventh in silver gilt. Among the famous pilgrims to the shrine are mentioned Henry the Third, Edward the First and Second, David Bruce, and bluff King Hal, who walked a mile barefoot to worship or make an estimate. The value of the offerings in 1534 was, at the Chapel of the Virgin, 201l. 1s.; at the sacred milk of the blessed Virgin, 2l. 2s. 3d.; at the Chapel of St. Lawrence, 8l. 9s. 1½d.; total, 391l. Due provision for the earthly wants of the pilgrims was made in a street of cook-shops and inns,—in the Beere, and the Dove, the White Horse, the Crowned Lion, the Mone and the Sterr, the Cock, the Madynhed, the Gryffon, and the Crane. Among the priors of Walsingham we note an antitype of modern church dignitaries in John Snoring, whose style and title still survive in the benefice of Great and Little Snorum. The last prior was a *Vowel*. Among the canons we note “a good physician,” and Thomas Lynne, “who with his own hands assisted at the work of the high altar”; Thomas Fornsete, who “apostatized by reason of theft which he committed”; and John Houghton, “who died in the pulpit of All Saints,” possibly from plethora.

The book before us is the work of a sagacious and zealous antiquary, who has scorned delights and lived laborious days in scrutinizing the ground-plans and designs of old towers and abbeys, has delved down to the foundations of pillars, and raked the mortar out of old inscriptions, and shaken the dust off old MSS., and discovered much that is interesting in the way of archaeology. By the aid of a vellum book shrivelled up with the heat, which Mr. Bond, of the British Museum, with great pains and ability rendered readable, Mr. Harrod, the author of these notes, points out a mistake which Miss Strickland, following Froissart, has made respecting Queen Isabella’s imprisonment and death at Castle Rising. Whether she was under duress in that goodly castle does not decisively appear, though Mr. Harrod is against the received account. The mistake as to the place of her death which Miss Strickland has pronounced for, is clearly proved by the following extract.—

“From the 12th year of her son’s reign she seems to have been constantly upon the move, until, in the year before her death, she was at Rising for a time, and thence appears to have gone to Hertford, where the Household Book commences in October. This curious book not only details all the outlay of each day upon the several meals, but all the disbursements on dress, jewels, messengers, alms, and presents, indeed, the expenses of every sort or kind; and in the margin are noted the guests entertained each day, from which we learn this remarkable fact, that in this, the last

year of her life, among her closest friends were the daughter and grandson of Roger Mortimer, together with many Frenchmen, and strangers; and couriers are paid for passing between the French Court and the Queen, showing that she was at that time taking part in state affairs. She appears to have required medical attendance at intervals from the 15th of February, 1357–8. In the beginning of August there were several night journeys made to London for medicine: on the 20th Master Simon de Bredon was summoned from thence to see the Queen’s state. On the 21st the Countess of Warren, her niece, arrived, and on the 22nd, according to this Household Book, she died, and not on the 23rd, as stated in the Inquisition. There can be no question that the evidence of this volume is decisive as to the time and place of her death: it must have taken place at Hertford Castle, on the 22nd of August, 1358, and on the 27th she was buried in the Grey Friars within Newgate, the Archbishop of Canterbury officiating, and the King himself being present.”

Norwich, with its bluff old castle and shapely Norman spire, is a city of pleasant memories. Sir Thomas Browne, and Bishop Hall, John Taylor, and the Martineaus, and the Gurneys,—and, not least, the Bishop who lodged Jenny Lind, preached a funeral sermon on a Quaker, and was lowered in a bucket from the spire of his own cathedral,—are among its notables. It sheltered a colony of Flemings from the persecution of the Duke of Alva, and in return acquired stuff-manufactories and printing. Mr. Harrod laments the ruthlessness of time, and the churlishness of deans, and the selfishness of individuals, who are insensible to the influences of Archaeology. Chapels have been transformed into granaries and workhouse kitchens,—carved wainscots into unholy parlour ornaments; where squalid black friars prayed, there citizens dine and Belletti and Piccolomini sing. Though Sir Thomas Erpingham still does penance in stone for his heresy, the Greenyard, where Queen Elizabeth Woodville heard sermons, is blocked up; and the author’s request, to see the hole in the Cathedral where the Holy Ghost came down in the form of a pigeon the Chapter pitilessly refuse to grant, and which the Dean describes as unprecedented. Still, much has been done. By the industry of a parish clerk we know the number of the figures in the cloister to be 328, and that which was taken to be a church-door Mr. Harrod has proved to be a refectory-door. And a passage in a MS. which perplexed antiquaries for two centuries and a half, as appearing to relate to marriages, our acute author has proved only to relate to towels:—“A quibus *mariturgia* dependent” ought to be read “A quibus *manutergia* dependent.” The Latin inscription on Prof. Smyth’s monument relates that he died “In ventâ Belgarum,” Winchester, instead of “In ventâ Icenorum,” Norwich. Here is an account of a funeral feast when Sir John Pastor was brought to Bromholm in 1466.—

“For three continuous days one man was engaged in no other occupation than that of flaying beasts, and provision was made of 13 barrels of beer, 27 barrels of ale, one barrel of beer of the greatest assyze, and a runlet of red wine of 15 gallons. All these, however, copious as they seem, proved inadequate to the demand; for the account goes on to state that 5 coombs of malt at one time and 10 at another were brewed up expressly for the occasion. Meat, too, was in proportion to the liquor; the country round about must have been swept of geese, chickens, capons, and such small gear, all which, with the 1,300 eggs, 20 gallons of milk and 8 of cream, and the 41 pigs, 49 calves, and 10 “nete” slain and devoured, give a fearful picture of the scene of festivity the abbey walls at that time beheld. Amongst such provisions the article of bread bears nearly the same proportion as in Falstaff’s bill of fare. The one-halfpenny worth

of the staff of life to the inordinate quantity of sack was acted over again in Bromholm Priory; but then, on the other hand, in matter of consumption, the torches, the many pounds' weight of wax to burn over the grave, and the separate candle of enormous stature and girth, form prodigious items. No less than 20*l.* was changed from gold into smaller coin that it might be showered amongst the attendant throng, and 26 marks in copper had been used for the same object in London before the procession began to move. A barber was occupied five days in smartening up the monks for the ceremony; and 'the reke of the torches at the dirge' was so great that the glazier had to remove two panes to permit the fumes to escape."

Of the first bishop, Herbert de Losinga, who, in 1094, transferred the see from Thetford to Norwich, we have some curious letters, when he writes to an abbot to "cause Suetonius, of which I can find no copy in England," to be transcribed, or indites a letter, like an excellent diocesan, in this wise.—

"I am going to Parliament with scarcely a horse and without any money, but God will be with me. I commend to you the Norwich Church, and I commend you to God. *If you have lack of anything, borrow it. Peace be with you.*"

On another occasion he keeps a palfrey, considering whether to follow the wish of the lender's heart or the words of his mouth.—

"In your heart you wish me to keep the palfrey; in words, you request me to send it back. As I have discerned that the direction of your words was but a pretence, I have determined to obey the desire of your heart. I have kept your palfrey, and the most just Judge will render it to you in flourishing pastures at the last Jubilee, when restitution of their goods shall be made to all."

Though latitudinarian on the subject of *tuum*, here is an opinion upon *meum*.—

"I in the mean time excommunicate those who broke into my park and killed my stag, with that anathema with which God in his anger smote the souls of the impious. I interdict them from entering into the church, and command their abstinence from the body and blood of Christ and from communion with all Christendom. May they be accursed and excommunicate, in houses, in streets, and in fields, in wood and in water, and in all places where they may be found. May the flesh of those who eat my stag's flesh rot away, as the flesh of Herod rotted, who shed innocent blood for Christ; with the traitor Judas, and Ananias and Sapphira, and Dathan and Abiram. Let them have the anathema maranatha, unless they quickly repent and give satisfaction. Fiat! Fiat! Fiat! This excommunication I ordain, my beloved brethren, not because I pay much regard to one stag, but because I would have them repent and confess and be corrected for such an offence."

For those who like there is much wise matter to be gleaned from these Gleanings.

*Lectures on Roman Husbandry, delivered before the University of Oxford; comprehending such an Account of the System of Agriculture, &c. pursued in Ancient Times as may be collected from the Scriptores Rei Rustice, the Georgics of Virgil, and other Classical Authorities.* By Chas. Daubeny, M.D. (J. H. & J. Parker.)

THE *Georgics* make very pleasant summer reading, and we cannot but congratulate ourselves that Dr. Daubeny's book should have reached us just as we were engaged in their perusal. Of those who are given to classical reading few can be expected to know agriculture,—and the agriculture of Virgil is that of the South, and quite out of the way of the disciples of Caird and Mechi. Special scholarship on such a branch must needs be very rare, —and hence the welcome which we owe the Professor's work ought to be given heartily. Indeed, it is full of the best information conveyed in a very graceful and unassuming

manner,—a manner best described, perhaps, as one of dignified ease. The Doctor walks through the Italian fields like an old Roman gentleman-farmer of the best period, and discourses of soils, olives, and vines, with a wave of the hand that would have done for one of the Cornelian family showing his country villa to a senator from the City. The title need frighten nobody, for, with all its learning, the book is one of the most readable (in a quiet erudite way) that we have met for a long time.

The Romans have never had justice done to their human and genial side. They were a stern, conquering, practical people, no doubt, —made the greatest sewers, and the greatest roads, and "annexed" the largest amount of territory of any race ever known. But they had a fund of kindness in them, too,—of love for rural scenes and pleasures;—of a native humour, such as produced their *Satire*, which is not an imitation of the Attic kind;—of respect for domestic relations, so that a Roman wife was better treated, according to modern ideas, than a Greek one. Perhaps, the most pleasant of these features is the relish they showed for agriculture, and the honour they paid it,—which was one of their earliest traditions,—which lasted all through their best times, and survived into their worst; and which gives a healthy breath, as of fresh rural air, to the pages of Lucretius and Cicero, of Horace and Tibullus, and Virgil,—of even Ovid, with his artificial grace,—Juvenal, with his town vehemence,—and Pliny, with his bookish smartness.

This feeling of theirs had its sentimental and its political character. The first was not quite that of modern times. It was not less real, indeed, for the human animal was far too perfectly developed not to relish all natural pleasure in the classical ages. The difference is not easy to define. Perhaps it is fair to say, that their feeling for nature was more simple than ours;—that it less frequently became mystical, and did not so deeply stir the powers of their imagination. An ancient loved the open air, the beauty and the quiet of the country, the shelter of a plane-tree, the peace of an olive grove,—but he did not brood over them as we do. Cicero would scarcely have relished Wordsworth, much as he would have admired Goldsmith's 'Deserted Village.' He liked to bring cushions out, and sit under the poplars by the banks of the Siris. He probably chanted with relish the lines in *Aristophanes*:—

For, sweetest was the country life to me,  
Homely, ungarishied, and all aimless going,  
Teeming with bees, and sheep, and olive-pressings.

And he shared this feeling with others of his countrymen,—especially with the poet Tibullus, about whom there is a genuine air of rural sentiment in the proper acceptance of the word. But, still, one feels a distinction in coming from a classic poet to a modern one in this matter. You are reminded that the ancestors of the modern worshipped the silent and empty groves themselves,—not fair figures gliding through them, the reflection of the human beauty of their own race.

But, without pursuing this inquiry, we come next to the other side of the Roman, in his regard for agriculture. It took precedence, with him, of all occupations. Thus, Cicero, in the first book of the 'De Officiis,'—after condemning retail trade, artizan work, and so forth, as "illiberal," (excepting, indeed, architecture, medicine, and the like; though it was Caesar who first practically did justice to what we now call "professions,")—declares that "nothing is better, richer, sweeter than agriculture, or more worthy of a freeman." The husbandmen, in fact, had supplied the earliest Roman armies;—great families had taken their names from

rural objects;—generals had come from farm-houses, and had returned to them. Accordingly, a people so full of reverence for their nationality and their traditions naturally looked back to their rustic days as sources of their greatness. They liked to think of an old bearded consular, who had been in the wars, going over his land with the *villicus*,—asking to see the corn account or superintending the pickling of legs of pork. Such a character just answered with them to our "Fine Old English Gentleman," and corresponded to our feudal ideal among all professed lovers of old times. Then, we are to remember the religious associations which gathered round their rural life,—the worship of the household gods,—the libations to Silvanus and the Genius,—the birthday kept with sacrifice and revelry, when an *amphora* of good stuff was brought out of the *cella vinaria*,—the sacred dance, with its three-fold measure,—the flowers on the wayside fountain,—the superstitions, charms, rhymes, and songs mixed up with all. Such incidents not only supplied poets and artists, but passed into the general mind, and modified that great and growing Roman Cockneyism which ripened fully about the same time as Roman Imperialism.

It was not till the first bloom had gone off the old Roman virtue, that this state of things began to wear out. The city absorbed much of the old country population. Great oligarchs prevailed over the small proprietors. Slaves swarmed, and were everywhere working the fields. Rome abounded in dangerous classes, and the provinces in miserable ones. Little touches of manners mark change, as strikingly as anything;—thus, Prof. Daubeny tells us from Columella,—

"It was a good rule of our ancestors, says Columella, though it be now obsolete, that the *villicus* should have his meals with the slaves, and partake of the same fare, so as to ascertain that their food is of good quality."

Horace speaks of "*inopes coloni*," as if that were their natural condition; besides threatening his servant with being sent to the Sabine farm as a punishment. Accordingly, we must look on the latter as being an inferior form of the tradition;—and the fine old love of the country as being poorly represented by the taste for flower-gardens and fish-ponds which became so marked under the Empire. The country became a mere luxury now, for the over-gorged old servile nobles to retire to, when they were upset by Cæcubum, peacock, shell-fish, and wild-boar,—there to get again vigour enough to enjoy these, and spirits enough to watch the clatter through the streets of an Emperor's mistress drawn by silver-shod mules.

After a summary of the work of the elder Cato, who is so picturesquely drawn by Plutarch, and who had a Franklin-like wit and shrewdness about him which relieve a not very lovable character,—Dr. Daubeny proceeds to Varro, and gives a brief analysis of his work, also. He then makes Columella alone the basis of the remainder,—by far the largest portion of the Lectures; only introducing the *Georgics* when they illustrate the topic, or he can illustrate them. Columella (a contemporary of Seneca, and of whose life very little is known) embodied the experience of many ages in his treatise, which therefore remains a text-book on the subject. It is probable that we have in Dr. Daubeny's pages all that the general scholar requires to know of that performance; while that still easier character, the general reader, will not expect us to go at great length into the various parts of the Roman plough, or to dispute whether *stiva* or *buris* be more rightly translated the plough-tail. All such points—the natures of soils, of manures, the keeping of



cattle, &c.—are discussed in these pages as readably as such subjects admit.

A point or two of wider interest may, however, be properly particularized. The Professor of course notices the question of slave-labour, which gradually overflowed Italy, to the injury and degradation of agricultural life, and the disturbance of the honourable old sentiment on which we have dwelt above. Two paragraphs shall give us the essence of his views:—

"The necessity which existed in the later periods of the Republic, and probably throughout that of the Empire, of employing slaves for the performance of the acts of husbandry, must have increased the difficulty of finding tenants for large tracts of land, since in addition to the capital required for stocking a farm, a large sum would have to be expended in the purchase of slaves to cultivate it. Hence it seems probable, that the *coloni* of whom Columella speaks were for the most part small holders, perhaps little better than the Irish cottiers, renting small plots of land which they could cultivate by their own labour, and that of a few household slaves; whilst the larger farms were usually in the hands of the landlord, tended by means of a bailiff or villicus."

\* \* Whilst the expense of slave-labour was scarcely less, its productiveness fell considerably short of that by means of freemen; and indeed, as we have seen, the declension of Agriculture in Italy dates from the time when slaves became abundant. It is therefore perhaps not wonderful that, in spite of the fertility of the greater part of Italy, the culture of the Cerealia did not flourish, and that the Romans were accustomed to depend for their supply of corn on Sicily, Africa, and other regions; the very opposite system being pursued from that, which, till within the last changes in politics, has prevailed with us, and this staple of life being actually provided to the citizens of Rome at a lower sum than the cost of production, instead of having its price enhanced by artificial regulations."

The Romans ate many things that we do, and some which we do not; but it is remarkable how much less care they took in providing butcher meat. Dr. Daubeny shows, by many particulars, that they cannot have been such meat-eaters as we are; but the pains they took in fattening birds is curious. All classical readers remember their relish for the *turdus* or thrush:—

"The Romans had large preserves, not only of poultry and pigeons, but even of thrushes and quails, enclosed in pens which were called 'ornithones,' from which they could draw their supply for the table at pleasure. We are told indeed of two sorts of ornithones, the one merely aviaries stocked with birds for the amusement of the proprietor; the other kind, constructed with a view to profit, which were often of vast extent, to supply the demands of the Roman market for such articles of luxury. In the Sabine country particularly, we read of extensive pens, filled with birds for the latter purpose. For thrushes alone there were large rooms provided, each capable of holding several thousand birds. As they were put in to be fattened, the place had only just light enough to enable the birds to see their food, but there was a good supply of fresh water accessible. And I may remark, that whilst nothing is said by the Roman writers about the fattening of oxen and sheep, particular directions are given for fattening poultry, and other birds—a strong additional argument of the little importance they attached to the larger animals as articles of food."

They had but few fruits, those which are now general in Europe, but not the productions of the warmer regions of the globe. It is doubtful whether they knew the melon, now so liberally scattered over the South and so deliciously welcome (especially the long yellow ones) on a Mediterranean summer-day. Their taste in gardening was not first-rate, and they indulged much in that fashion of clipping trees into artificial shapes—now luckily esteemed barbarous amongst ourselves. It is, however, with a pleasing sense of the brotherhood of great races that we see in these pages how at the lapse of some

two thousand years that which was wise in Roman agriculture proves wise now; how many objects of use and beauty we can identify as being common to both of us; how often the modern traveller stumbles over some field or flower exactly tallying in its modern characteristics with those which he has found described by Columella or Virgil! A "liberal" culture (to borrow their own pet phrase) still requires the aid of their wisdom and experience; and both of these—as employed on a liberal science will be found in the book for which we have to thank Dr. Daubeny.

*The Life of Martin Luther.* By Henry Worsley, M.A. 2 vols. (Bell & Daldy.)

HERE we have a full-length portrait of the German Reformer, excellently done by an English artist. The likeness is striking, and the execution careful and conscientious. The bold and manly figure of the Monk of Wittenberg, holding up the Gospel and flinging back his cowl, stands in clear outline before us; his "open, right valiant countenance" looks at us, as it looked at the flames consuming the Pope's Bull,—as it looked in the Emperor's face on the Diet at Worms,—as it looked from the heights of Wartburg into the green wilderness of the Thuringian forest,—as it pored over the Greek and Hebrew Scriptures,—as it beamed love into the eyes of wife and children.

The chief merit of the volumes before us consists not so much in adding materially to our knowledge concerning Luther, as in uniting and arranging whatever information about him and the great work of his life was hitherto scattered in numberless writings, the greatest part of them German, and therefore hardly accessible to the majority of English readers. The book, as the author tells us in the Preface, "is an attempt to supply a simple, impartial, and truthful narrative of the great Reformer's public acts and personal and domestic history in a succinct and readable form."

The sources from which Mr. Worsley has drawn his information, are of a double nature: the writings of Luther and his friends and contemporaries, and the German and French biographies and histories of the Reformation founded on them. The first-named sources, however, are those which are mostly used,—often, too, in order to correct erroneous statements of later writers,—nothing from whom is accepted by Mr. Worsley on mere trust. Luther's own words, whether from his sermons, his controversial pamphlets, his correspondence or his Table-talk, are freely introduced:—yet, unlike Michelet, whose work is purposely a biography, composed of a series of translations from Luther's writings, letters, and *Tischreden*, it is Mr. Worsley himself whom we hear in his pages; we do not see "Luther's life related by Luther," but by Mr. Worsley. This, of course, stamps his book with a higher character than that of his spirited and popular predecessor. We receive from him no patchwork, however skilfully and eruditely arranged: what he presents us with, is an historical picture of his own make. The spirit in which he unrolls this picture is, of course, Protestant.

The 'Life of Luther' is the history of the Reformation. It would lead us, therefore, too far, were we to follow Mr. Worsley step by step,—were we to give an abstract, however short and rapid, of his volumes. Suffice it to say, that he has worked up his rich materials in an admirable way. The march of the hero's mind keeps pace with the march of events; we see him agitated by inward as well as by outward storms and trials; action follows action, exploit; a world in arms stands up against the

poor preacher, the assertor of light, and truth, and liberty,—until, at last, we find ourselves at the side of that humble deathbed at Eisleben, where the great and good man, having achieved the work he was sent for, meekly resigns his soul into the hands of God.

We proceed to give a few extracts. The importance of Luther's translation of the Bible, that work by which he first settled the language of his country, will render the following acceptable:—

"The subject to which his utmost attention was next devoted was his translation of the New Testament. The whole had been translated by him in the Wartburg; but the work required revision, and he went through it all verse by verse with Melancthon, making use of his friend's great philological attainments in explanation of difficult words or singular constructions, and then, with his own mastership of the German tongue, rendering each passage in its exact sense. Wherever aid could be procured for this great work it was at once enlisted. Spalatin was consulted on the names, colours, and general appearance of the precious stones mentioned in Rev. xxi., and by the Elector's kindness a box of specimens was forwarded to Wittenberg. On the subject of the coins of the ancients Melancthon made use of the treatise of the French scholar Budeus, but consulted also his friend Camerarius, George Operus, and other learned men. The work proceeded rapidly. Before the 14th of April the Gospel of St. John had been printed and despatched to Spalatin, who was in attendance on the Elector at Nuremberg. By the 4th of July St. Mark and the Epistle to the Romans were likewise forwarded to the Court. And by the 21st of September the whole of the New Testament in German was in print, and could be purchased at the moderate sum of a florin and a half. The healing streams of the fountain of life flowed freely amongst a grateful people. As early as December a new edition was called for. Before eleven years had elapsed seven editions had issued from the Wittenberg presses alone, besides a much larger issue in other towns of this work, at once the seal of the Reformation's success and the earnest of its increasing triumph. But whilst the German version of the New Testament was passing through the press, Luther's indefatigable energy had already begun the still more arduous task of translating the whole of the Old Testament from the Hebrew original. As this labour advanced, he exclaimed, 'If any man think himself learned, let him attempt to translate the Bible, and he will find out his mistake.' The translation was published piecemeal, and each portion or book was rapidly printed off. A fragment of the translation was forwarded to Spalatin as early as the 10th of May; and before the end of the year the whole of the five books of Moses had been completed. But with all the ardour which such a work, in the infancy of the Reformation, called into exercise, the immensity of the task of necessity occupied many years before an entire edition of the sacred volume in German could be forthcoming. No source of information, however humble, was neglected in the endeavour to give Germany as perfect a version as possible of the Old Testament. Before November Luther had translated as far as Leviticus, and whilst engaged on that book, was often to be seen at the stalls of the butchers in the town, examining the division of the carcasses of oxen and sheep, and learning the technical names of the various parts. On the subject of birds, beasts, and reptiles, on which he found the Vulgate even more than usually unsatisfactory, he consulted Spalatin, who, it seems, had some acquaintance with natural history. The industry and research which Luther expended on the German version of the Word of God was in marked contrast to the fluency and rapidity with which he threw off the, as he thought, valueless compositions of his own pen. Often one Hebrew word occupied a laborious consideration of three or four weeks. And as long as he lived the correction and improvement of his version of the Scriptures, by which, as his true monument, he desired that his name should be remembered with posterity, was a daily and unceasing

study. And this may be the most appropriate place to mention the means which he adopted for this important end. When the translation of the whole Bible had issued from the press, necessarily very imperfect from the difficulty of the work and the haste of the execution, he organized a synod or sanhedrim of learned men, whose suggestions might be of value for its amendment and more complete finish. This synod was composed of Bugenhagen, Jonas, Melancthon, Cruciger, Aurogallus, and George Rorer, of which last the office was to note down the corrections agreed upon. They met once every week before supper in the Augustine convent; and if any learned man from another university should happen to be on a visit to Wittenberg, he was invited to the conference. Luther brought to the conclave his old Latin Bible and his German version with the Hebrew text interleaved; Melancthon the Septuagint version; Cruciger the Hebrew and Chaldee texts; Bugenhagen his 'well-thumbed' Latin Bible. The Targums and the interpretations of the Jewish Rabbis were also consulted. The portion to be considered was stated beforehand, and in the interval of the meetings each studied it in private. When they were met, their opinions on the passage or topic under consideration were asked in rotation, and each, without interruption, delivered himself of the knowledge on the subject with which his researches in the interval, or his previous learning, had furnished him. But when the true meaning of the Hebrew original, as far as was possible, had thus been elicited, the task of clothing it in the most befitting German devolved on Luther alone. Acquainted with all that had been written in his own language, well read in the national poetry from its earliest bards to his own time, he had peculiar talents for this office; and his rule was to choose the shortest, simplest, and most familiar words and phrases, never forgetting that his translation was to be the poor man's Bible. The anniversary of the day on which the German version of the Scriptures had been completed was solemnly kept in Bugenhagen's house, and was spent in united prayer and songs of thanksgiving to God.

Was Luther indeed so well read in the national poetry of Germany, "from its earliest bards to his own time," as the author supposes him to have been? The greatest poem produced by Germany during the Middle Ages, the 'Nibelungenlied,' was, at the time of Luther, a buried treasure. It was equally so with the other monuments of old German literature. We doubt whether any stray couplet of Walter von der Vogelweide's ever found its way to Luther's ears,—whether Gottfried von Strassburg or Wolfram von Eschenbach ever cheered the solitude of his monastic cell. The more honour for Luther, if, nevertheless, he fixed the standard of his language, and became the father of (modern) German literature as well as the father of the Protestant churches.

As we said before, Luther's own words, written or spoken, are frequently interwoven with the narrative, which hence derives a wonderful simplicity and freshness. Here we have a glimpse of Luther in his domestic relations. Listen how the mouth which proudly defied the flashes of the Vatican can whisper to the ears of a little son,—how nobly and manfully it deplores the loss of a beloved father.—

"Turning his thoughts homeward, whence he received good tidings of his son Johnny, from Weller his tutor, he indited a letter to the child, to encourage him in learning.—'Grace, and love in Christ, my dear little son. I see with delight that you learn well, and love to pray. Go on so, my little son, and when I return home, I will bring you a pretty fairing. I know a beautiful, delightful garden, where many children go in, and have on golden jackets, and gather beautiful apples under the apple-trees, and pears, and cherries, and plums; sing, and jump, and are merry: they have beautiful ponies, with golden bits and silver saddles. I asked the man to whom the garden belongs, 'Whose children are these?' He said, 'They are children

who love to pray, and learn well, and are good.'" So I said, "Dear man, I have a son, called Johnny Luther, may not he come into this garden and eat such beautiful apples and pears, and ride such pretty ponies, and play with these children?" Then he said, "If he loves to pray, and learn, and is good, he may come into the garden, and Lippus and Jost too; and if they all come together, they shall have pipes, drums, lutes, and every kind of stringed instrument, and dance, and shoot with little cross-bows." So he showed me a lovely meadow in the garden, prepared for dancing, where were many golden pipes, drums, and beautiful silver cross-bows. But it was too early for the children to come; so I could not wait to see the dancing, but said to the man, "Dear sir, I shall soon come again; and I shall write all this to my dear little son, Johnny, that he may love to pray, and learn well, and be good, so that he may come into this garden. But he has an aunt, Lena, who must come with him." So the man said, "Yes, it shall be so; and go and write to him." Therefore, dear little son Johnny, learn, and pray cheerfully, and tell Lippus and Jost to do so too, and so you shall all come together into the garden. Herewith, I commend you to Almighty God, and greet aunt Lena, and give her a kiss from me. Your dear father, MARTIN LUTHER."

It was about the time of writing this letter that the Reformer received intelligence of the death of his aged father, whose removal to Wittenberg in his failing state of health had not been possible, and he was overwhelmed with the keenest sorrow at the tidings.—

"Whatever I am, or have," he said, "I owe under God to him, who made and fashioned me such as I am, by the sweat of his brow; and though I am much comforted that he has sweetly fallen asleep in Christ, the recollection of his society has so shaken my soul, that I scarcely ever had such a contempt of death. But the righteous is taken away from the evil to come. We so often die, ere we die once! I am now the old Luther of my family."

Traits like these (loving and cheerful letters to "his Lord Kate," or "Emperor Kate," among the number) abound in the book. We must give, partly at least, the character of the Reformer, as drawn by the author.—

"For this glorious task, to which he felt and knew that God had called him, of drawing forth the light of Scripture from its concealment, and replacing it in the temple, the palace, the college, the school, and the dwelling-house, he possessed extraordinary endowments of body and mind. In stature he was not much above the ordinary height, but his limbs were firmly set; he had 'an open, right valiant countenance': a broad, German nose, slightly aquiline; a forehead rather wide than lofty, with beetling brows; large lips and mouth; eyes full of lustre, which were compared to the eagle's or the lion's; short, curling, dark hair, and a distinguishing wart on the right cheek. In the early part of his career, his figure was emaciated to the last degree; subsequently it filled out, and in his latter years inclined to corpulence. His constitution was naturally of the strongest cast; one of the common mould must soon have sunk under his unparalleled energy; and he was never better than with plenty of toil and study, and a moderate diet, such as his accustomed food of a herring and pease. 'In Luther,' says Varillas, 'an Italian head was joined to a German body.' In bodily temperament and in mental qualities it was the union of gifts rarely found together that gave him the grasp and compass of power suited to his work. His temperament was at once sanguine and melancholic. He was full of life and fire, and yet patient and imperturbable. So, too, in mental faculties: he was endowed with original genius of the highest order; the profoundest mind united to the strongest common sense and a vivid imagination joined to clear judgment. The deepest of thinkers, he was the simplest of writers. A man of study, he was also a man of the world. Well read in books, he was even yet better read in the human heart,—profound yet child-like; sublime yet simple; earnest and enthusiastic, and yet full of comic humour. The chief agent in a most thorough revolution, he yet clung with almost

a blind devotion to the past, retained to the last his Latin Bible and the Roman division of the Commandments, and would let nothing go from his hand till, by the plainest evidence, it was wrested from him. A miner's son, yet aristocratic in every sentiment. From staying with the Prince of Anhalt, or the Elector of Saxony, he would pass to an honest tradesman or a good-natured publican, and be greeted with the warm familiarity of old friendship. From writing to one of the crowned heads of Europe, he would resume the pen to answer some obscure correspondent, a nun or shop-keeper, a forester or fencing-master. The oracle of Wittenberg and of Germany, he was never more in his element than amongst children. He was equally adapted to detect the literary forgeries of the Roman Church, to overcome Dr. Eck in theological disputation, to out-satirize Erasmus, or to preach a sermon to an assembly of illiterate boors. But with such great variety of faculties and character, the chain of consistency was never broken; he was always Luther, without a tinge of affectation or pretension; the man who could not seem or dissemble: the life of an entertainment; and then, plunged in melancholy by the weight of inward trials, or retiring to his study to work day and night at some treatise, which the public interests demanded, without tasting food or drink until the completed manuscript should be sent to the printers."

In the report which Mr. Worsley gives of Luther as a writer, too little stress is laid upon his eminent poetical gifts, and the influence which he exercised by his Hymns upon the march of the Reformation. Indeed, had he not been the great Reformer, Luther would still be remembered as a great poet. His love and talent for music, which, in fact, goes hand in hand with his poesy, and is altogether one of the most prominent features of his character, ought to have been dwelt upon more distinctly. The hymn 'Eine feste Burg ist unser Gott' (Vol. I., page 227) we should have preferred to read in Mr. Carlyle's or Miss Catherine Winkworth's translation, instead of in the less efficient one of the author.

*Journal of a Bashi Bazouk.* By Hugh Mulenex Walmsley, Lieut.-Colonel in the Turkish Horse. (Groombridge & Sons.)

Lieut.-Col. Walmsley writes from impulse as well as from memory, and, if not authoritative, is amusing. He was at Sicily, at Athens, at Constantinople, at Varna, and at Schumla, and saw a good deal of what went on outside the actual arena of the war. He has no style, and his way of keeping a journal is desultory and digressive; but he gossips lightly, and has one or two anecdotes to relate, besides a few notable sketches of persons and costumes. Two hours at Athens inspired him with admiration; he glanced reverentially at the Greek inscriptions on the walls, at the cluster of pale temples on the classic rock, and at the Athenian girls with their pearl-decked hair. Then, Stamboul beamed upon him from the sun-ripened shore, and he hastens to tell us, *à propos* of the Seraglio, that once a year the Sultan is presented with the most beautiful horse and most graceful maiden procurable. The Lieut.-Colonel of Bashis, we may remark, has a special fancy for describing the loveliness of the gazelle-eyed Orientals. He saw two of the ivory-wristed Circassians, one in the harem of a Pasha, whose wife made a proud exhibition of the damsel.—

"About half an hour elapsed, when a heavy curtain (the eccentric undulations of which had greatly contributed to arouse the above suspicions) was gently moved on one side by unseen hands, and a young Circassian girl entered. She wore no veil, and as she paused timidly on the threshold, I detected a glance of almost fear as her large black eyes fell upon me. My sable friend motioned her forward with an imperious gesture. She was



magnificently dressed; her dark hair sowed with pearls, and her light blue trowsers and turned-up slippers, heavy with gold and pearls. Obedient to the eunuch's gesture, she sat down on the edge of the divan, and certainly she was very beautiful."

His next vision of beauty was in the house of a slave-dealer, where a young rose of the mountains was for sale. A Turkish friend accompanied him, with an English artillery officer, and the Mohammedan gentleman proceeded to satisfy himself that the lady was tender and supple as well as fair. She submitted with sweet humility:—

"The artillery-man, who was a fine handsome fellow, some six feet in height, and a perfect model of strength (depending doubtless on his personal fascinations), next approached the lady; but hardly had he laid his hands upon her when, full on his devoted head fell such a blow as nothing but ocular demonstration could have induced me to believe so fair a hand and arm could have bestowed; then followed such a torrent of abuse, such a deluge of words that we were positively stunned. Our Turkish friends smiled gravely, but nothing could possibly appease the insulted fair, until we both left the room; and as we descended the creaking stairs the last sounds we heard were the angry exclamations of the lady. She, indeed, to have been touched by an infidel! a vile Christian! a dog of a Giaour!"

The Bashi could not obtain a personal insight into the cloisters of Ottoman innocence; but an Englishwoman supplied him with sketches, which he presents at large,—the picture being bright with orange-coloured jackets, purple girdles, stars of brilliants and kaleidoscopic tissues. More interesting, however, is an account of an Armenian wedding:—

"The family being well off, the rooms were nicely arranged, and in part were carpeted, and a number of musicians were playing on the violin. I was conducted to the divan, chibouks, wine, nuts, and sweetmeats being plentifully handed round from time to time. In the centre of the room knelt a young boy richly dressed. The violin players every now and then burst into a wild extempore song, accompanying themselves on their instruments; while the boy would from time to time start up and commence a violent kind of dance, beating castanets to keep time with his motions. This went on, almost without intermission, for at least an hour and a half, during which time every one smoked and looked on, and at the end of that time, fairly tired out with the noise, I left. The following morning the bride was taken to church. I did not see her go, but I witnessed her return. She walked between two women—her bridesmaids, I presume—and her face was concealed by a covering of crimson silk, ornamented with gold, and terminated by rich gold tassels. She was preceded by singers, and followed by at least seventy women. As she approached the threshold of her father's door a sheep was thrown down at her feet, and she suddenly stopped with her bridesmaids while its throat was cut with a sharp knife, and the blood flowed in rivulets all round the spot where she was standing. Advancing a step or two, she frequently stooped and kissed the hem of her father's garment, bending very low. Presents were now offered to her of rich silks and cloths, and these she received herself, handing them to her attendant women, while a censer of incense was continually swung round her head by her father. I could not understand the custom of slaughtering a sheep on such an occasion, nor did I speak enough of the language to be able to discover its purport."

The writer does not attribute very high military qualities to the Bashi Bazouks.—

"They looked curious enough on parade, as the different regiments fell in, dressed in the costumes of their country, and carrying their various colours. Their horses were small and wiry, generally vicious, and knew their places in the ranks quite as well as their riders. Their broad, shovel-shaped stirrups, short stirrup leathers, curious sabres, and belts stuck full of pistols, gave them a wild look. Steadiness in the ranks was a virtue difficult of attain-

ment, and when a brigade was in close column many of the rear squadrons would kneel on their saddles so as to see what was going on in their front, while those still further in the rear would stand upright on theirs. With all this they manoeuvred with some precision, and were gradually improving."

Here is a Bashi's anecdote:—

"A murder had been committed, and one of the parties admitted as Queen's evidence, it being impossible to prove it otherwise. The accused were found guilty, and condemned to death. They heard their sentence perfectly unmoved, but before retiring, one of their number stepped forward, and pointing out the man who had turned evidence against them, remonstrated. 'Death,' he said, 'what is death? it must come sooner or later, and we fear it not. It is just we should die, but he,' pointing to the evidence,—he shared our crime, and should share our punishment. This is worse than death.' Their sentence was commuted, and they did not die."

With a piece of harmless scandal, picked up at Constantinople, we will leave the Lieut.-Colonel of these fierce Irregulars.—

"One more word as to the Embassy. There passed through Pera, en route for England, an officer of the Rifles. This man was what the French call a *farceur*, and rejoiced in the rather common name of Smith. According to general rule he left his card at the Embassy, and as he had only just received his promotion to a company, the card in question bore on its face the letters, 'Mr. A. S. Smith. No notice was taken of the plebeian Smith; but the man was not to be beat, and made a bet that he would be asked to dinner at the Embassy. The aristocratic tendency of the subalterns there was so well known, that the bet was readily accepted, the only condition made being that he, Capt. Smith, was to receive the invitation without personal solicitation in any shape. Some days passed, and Smith could hardly show his face in the street without inquiries being made as to whether last night's dinner at the Embassy was good or not, how many guests there were, and similar questions. He took all very good-humouredly; but he had not been losing his time, for he had caused his card to be reprinted, and this time it stood thus: 'Captain Augustus Stanley Smith, 1st Battalion Rifles, &c.' and armed with this he again called at the Embassy, sent up his card, and the following day Capt. Augustus Stanley Smith received the invitation which would never have reached the plain Mr. A. S. Smith."

It will be seen that Lieut.-Col. Walsley is disposed to be lively, and remembers some amusing gossip of the late war.

*New General Biographical Dictionary, from the Earliest Times to the Present Day*—[ *Nouvelle Biographie Générale, &c.*] Published by MM. Firmin Didot frères, under the direction of Dr. Hoefer. Vols. XIII.—XX. D—G. (Paris, Didot; London, Nutt.)

So short a time has elapsed since we noticed the first twelve volumes of this work [*ante*, p. 591], that the terms of approval then employed by us are probably still in the recollection of many of our readers. To those terms we have little to add; nor does a further examination of this 'General Biography' justify us in changing or qualifying the tenor of any of our remarks, which fell a little short of approbation. What we have to add on the present occasion has reference, principally, to the dramatic biographies,—the sprightly articles on playwrights, actors, and actresses. These, even where they are as brief as that on Desfontaines,—of whom nobody knows the birthplace, and nobody remembers where he died,—are, to say the best, very cleverly written. This Desfontaines, for example, was a dramatic author of the sixteenth century, remarkable for his prolific mediocrity. Had he possessed a little more ability, he would have occupied a less distinguished place in this

huge literary omnibus, which is to convey its passengers the long journey to posterity. Of Desfontaines himself nobody knows anything, and nobody cares anything. But his tragedies are worth remembering for their comical absurdity. They appear to have been seriously written, very much in the strain of Fielding's mock-heroics, where familiar figures of speech are hoisted on stilts. For instance, Archelaus, King of Troas, thus reproaches his daughter, Pasithea, for her rather over-much of kind bearing towards the renowned pirate, Eurymedon:

Vous souffrez toutefois que seul il vous cajole;  
Contre un père, pour lui vous prenez la parole.  
Il baise librement et la bouche et le sein,  
Et tout cela, chez vous, passe pour bon dessein.  
Sa conversation est la même innocence.  
En parler seulement, c'est commettre une offense.  
Malgré ce beau mignon qui cause tout ceci,  
Vos discours changeront dans peu de temps d'ici.

We do not know where this can be matched, except, perhaps, in the rebuke of Fielding's vivacious Stormandra, in one line of which is quite an Aristophanic touch, such as will remind the reader of the "Sardian dye," the "scarlet jacket" on the naked loins of the Greek author's whipped boaster.—

Dost thou recount thy services, base wretch,  
Forgetting mine? Dost thou forget the time  
When, shivering on a winter's icy morn,  
I found thy coatless carcass at the round-house?  
Did I not then forget my proper woes?  
Did I not send for half a pint of gin  
To warm thy ungrateful throat? Filled I not off  
A quilted petticoat to clothe thy back?  
That unskinn'd back, which rods had dress'd in red,—  
Thy only title to the name of captain?

It was by such speeches as the above that Fielding ridiculed the Desfontaines of his day on this side of the water. Indeed, some of the writers, whose style and expression were caricatured by Fielding, wrote both better and worse than the French dramatist. Happily, their tragedies are entombed in old book-shops, where they lie, like coarse effigies in ancient churches, eternally ugly and defunct.

The collector of stage-illustrations will not find it difficult to construct a history of the Drama out of the theatrical articles alone in this work. Most of them have something beyond mere biographical details connected with acting. We may cite, as an instance, the articles on the Favarts, in which there is an episode strikingly illustrative of the times. They were times in which nothing belonged to any man that was coveted by what had custom or equally vicious courtesy called his "superiors." Thus, Maurice de Saxe, one of those warriors who despised orthography, and who had no respect for "virtus," save in its classical sense of "valour," chose to fancy that young Madame Favart belonged to him, despite what the lady or her husband might think upon the matter. The complete ruin of both was accounted of, by the hero, as a matter not worth thinking about, in comparison with the accomplishment of his object. Plebeians were not supposed to possess feelings, and if they were foolish enough to have them, there was no better sport for such men as the illustrious Maurice than lacerating them, and then laughing at the victims. We need not further allude to an episode which has been exquisitely handled by Grimm: exquisitely, that is, in all but its lack of condemnation of the immorality of the so-called hero. But Grimm, who set up for a judge, in his way, was very like the facetious Scotch Rhadamanthus, who, even in a case of murder, was watchful for an opportunity to cut a joke, and whose delight at making one based on immorality set himself and all his audience, save one, in a roar of laughter.

People who expect to live in General Biographies should be watchful of their conduct, for the biography may be to them a pillory rather than a triumphal chariot. There are

many incidents narrated here which would never have happened had they of whom the stories are told ever suspected that the after-world would know of them. Some of these illustrations of character have, probably, been furnished originally by gentlemen who kept diaries,—a class of writers who should especially be avoided by great men of little minds, and little men who fancy themselves great, and whose presumption, arrogance, and double dealing are sure to be noted down for the benefit of posterity. While on this subject, we may state that, as we turn over these volumes, we are struck by a circumstance which, indeed, is so common that it ought not to have excited any particular surprise. We allude to the fact that a truly great or able man has very rarely indeed had a truly great or able son. We know that Tully's boy was a sorry fool, and so it seems to have been with the pedigree of many other houses. The father achieves a title to the respect of mankind, while the son strives to live on his sire's renown, and forfeits all chance of obtaining any himself, except for his arrogant folly. A French proverb says, "Happy are the children whose fathers are d—d"; a rough way of saying, "Lucky the sons who do not depend, for respect, on the virtues of their fathers." Very many such are enrolled in the 'General Biography.' The exceptional cases are many, too; they usually show us men devoured by conceit, and remarkable for their wearisomeness. Like the gentleman in Jerrold's 'Bubbles of the Day,' they "think they're dropping diamonds, when they are always talking tape-worms."

In our previous notice of this work, we alluded to certain shortcomings in the articles on English individuals. This fault still marks, to some extent, the 'British Biography' in the volumes before us. Thus, under 'Fawkes (Guy),' we find it asserted, "*On ne sait rien de ses premières années.*" Now, it is just the reverse of correct to say that nothing is known of the early years of the celebrated conspirator. The author here begins Guy's history with the enlistment of the dissipated fellow, who had spent his patrimony, in the Spanish army in Flanders. But much is known of him long before that period. We know the very day, April 16, 1570, on which the christening party left the house of his honest father, the lawyer, in York, and conveyed the yet unnamed Guy to the Church of St. Michael-le-Belfry. We know that he was yet a child in the arms of his good mother, Edith, when his grandmother, Ellen Fawkes, left him, in her will, her "best whistle and one old angel of gold." Equally well known is it that Guy was only nine years of age when he lost his father, and that for several subsequent years he was a pupil at the free grammar-school in "Le Horse Fayre," at York. We even are acquainted with his school-fellows there, among whom were two Toms, of later fame,—one, Tom Morton, who became Bishop of Durham; the other, Tom Cheke, who rose to the dignity of "Sir Thomas Cheke, Bart." The master of these severally distinguished boys was the Rev. Edward Pulleyn; and the good gentleman was, probably, sorry enough when Guy's widowed mother married Dennis Baynbridge, of Scotton, whither she not alone took her only son and his two sisters, Anne and Elizabeth, but where the whole party, hitherto Protestant, joined the Romish Church, of which the new head of their household was a member. On the very day of the wedding, Guy's Uncle Thomas bequeathed him a legacy, namely, "a bed, with one pair of sheets and appurtenances." Up to the period of his becoming of age, Fawkes lived in the locality near Knaresborough, where also resided Pullens, Percies, Winters, Wrights,—names familiar to us in the record of the great plot.

Further, we know that the patrimony of Guy consisted of land and a farm-house. A couple or so of acres of the land, with the house, were let by the owner to a tailor, named Lumley, at forty-two shillings a year. The remainder Guy sold for about thirty pounds; and, soon after, the portion occupied by the tailor was also converted into money. With this Guy came up to town, lived loosely for awhile, and then embarked,—not for service in Flanders, as we are told in the 'General Biography,' but in Spain. It was at a later period of his life that Fawkes, the "gentle" follower of the "noble" Catesby, proceeded to Flanders, whence he was fetched for the accomplishment of the projected up-ending of Parliament. Thus it will be seen that so far from nothing being known of Guy's early years, the incidents by which they were marked are even better defined than those of the middle period of his life. The fact is, that the compiler of the article has rested on no more recondite authority than Hume, Lingard, and the "Library of Entertaining Knowledge." Had he consulted the pamphlet, called 'The Fawkeses of York,' the work of an accomplished antiquary of that city, he would not have made the mistake of supposing that we were entirely ignorant of the childhood and youth of a person whose deeds caused the name of "Guy" to almost cease as a baptismal appellation.

The article on the "Georges," Kings of England, are more solid than brilliant; but they are unprejudiced, and, that of George the Third especially, clever as lucid histories of an interesting period. Quite as able, in respect to power of condensation, are the articles on "Davy" and "Faraday," the former of which much exceeds in length the latter article. The biographer, too, has missed a point characteristic of both men. Faraday, in one of his first interviews with Davy, told the latter that his reason for wishing to emancipate himself from the counter, to study the sciences, was because trade made people vicious and selfish, while they who pursued science became amiable and liberal. Davy looked at the young man, smiled in compassion or envy of his happy ignorance, and said the experience of a few years might, probably, alter his opinions on that matter.

We do not know what rule is professedly followed with regard to the biographies of living persons; apparently, no rule at all, but caprice or favour. We could name some that have scarcely any claim to be here, others that are not treated at sufficient length; and we look for names that should be here, but which are omitted altogether. Some carelessness, also, of revision is visible in English names and titles. We have, for instance, 'The Papers of the Pickwicks Club,' 'Chuzzlevil,' and 'Dombey and his Son,' among the works of Mr. Charles Dickens. These are only a few out of many similar errors, and we account them as nothing when we think of the labour, zeal, and talent hitherto lavishly spent on a work creditable alike to all concerned. As we close one of these volumes, containing a sketch of Désaugiers, our eyes fall upon a sentence which has now more than ordinary interest. In 1812 Désaugiers was the song-writer of his day; all others were forgotten in him. "As President of the Society of the *Caveau Moderne*, it was for the dinners which brought the members together that he composed the greater part of his songs; and there Béranger first sang, in 1812, his 'Roi d'Yvetot,' amid the applauses of the joyous guests." Both minstrels, each incomparable in his way, are now mute for ever; but the echoes of their genius will give them longer life than any record descriptive of them, even in the best of Biographical Dictionaries.

#### *The Cotton Crisis, and How to Avert it.* (Whitaker & Co.)

THE acquaintance which even Manchester gentlemen possess with those great principles which overthrew the Protectionist system in England, is made manifest by the recent agitation on the subject of our cotton supplies. This pamphlet embodies the various arguments of the speakers on the subject at recent meetings. The cry is precisely the same as that of the patriotic landlords and farmers of ten years ago. We send to the United States goods to the value of fifteen millions sterling per annum, in exchange for 6-7ths of all the cotton we consume. This fact to the political economist is, in every respect, a cheering one. He knows that if it were possible to get as good cotton cheaper elsewhere, men would long ago have found this out, and would have procured it elsewhere. In a trade which has regularly and so enormously extended itself under no fostering, artificial regulations, he sees nothing but a natural and healthy fact; and he regards the commercial relation which it maintains between two great progressive nations as a pleasing guarantee of future peace and friendship. Our manufacturers and politicians, however, take a different view. They are alarmed at "our abject dependence" upon America. She holds, according to this writer, "a power over us—a rod in *terror* more to be dreaded, and which would prove far more effective in compelling a premature and involuntary peace than all the fleets and armies." Insults pocketed, depredations already submitted to, haunt the writer's mind. Moreover, the crops of our "haughty rival" may fail, or slaves may revolt,—by any of which causes cotton supplies may fall off, and England be involved in bankruptcy and ruin. Would it not be well to meet these possible troubles even more than half way? The answer of course must be equally applicable to tallow and hemp, for want of which every one knows England was inconvenienced during the last war. Let the members of the cotton agitation ask themselves whether any speculator in the world would produce tallow, hemp, or cotton while Russia or the United States could undersell him, on the chance of suddenly making a fortune by one of these contingencies? If no man thinks of doing so, the argument is valueless; if any men do, the danger is already counterbalanced. The fear of the United States stopping our supplies is something like the anxiety which one of the Siamese twins might have felt at the power of his brother to sever the connexion, and leave him at any moment to bleed to death. The other arguments of those who can urge such considerations as these are not likely to be worth much. It is in vain for gentlemen who sit at home to attempt to demonstrate that East Indian cotton ought to supersede American cotton; that the experiments of Government and the enthusiastic efforts of private individuals ought not to have failed as they have again and again; that planters and capitalists in India, who, in spite of impolitic land tenures and other alleged grievances, have raised the indigo cultivation to unexampled prosperity, are wholly ignorant or careless of their own interest in the case of cotton. The success of Mr. Shaw in growing New Orleans cotton in Dharwar establishes little, save that the exhortations of Manchester to the Indian growers must be altogether superfluous. The experiment which English gentlemen think conclusive has been long before their eyes. No elaborate estimates are required to show that land in India is abundant. Capital and labour are already on the spot engaged in agricultural operations yielding no more than



ordinary profits. Yet India, though producing much cotton for home use, still continues to send to England but a trifling quantity. The fact is, that numberless considerations affect the question of comparative advantage in production, which only the subtle operation of the law of supply and demand can appreciate. The supply of East Indian cotton always increases largely when the price of American cotton in Liverpool rises from any cause, and it falls off at other times. If it were possible at all times to deliver East Indian cotton of equal quality at one farthing per pound cheaper, American cotton would long since have vanished from our markets. The realization of this dream of the Manchester gentlemen may be safely left to those natural instincts and laws of commerce which require no aid from oratory. Meanwhile, none but a protectionist of the old school will attach any value to the political and moral considerations with which members of the movement support their views.

## OUR LIBRARY TABLE.

*Rome: its Ruler and its Institutions.* By John Francis Maguire, M.P. (Longman & Co.).—Mr. Maguire's account of the political and social condition of Rome is not one that offers itself to criticism. It is a pleasant eulogy, which may be profitably read, nevertheless, by those who consider that no good thing can flourish under the Papacy. Mr. Maguire writes in rose-coloured ink; his mind was led captive along the banks of the Tiber; his book is a long utterance of delight and admiration, with which we see no cause to quarrel, except when the tourist betakes himself to history, which sadly suffers in his hands. He writes pages of execrations against the chiefs of the Roman Republic of 1848, and among his "facts" some are startlingly new to us. It would have been as well to have abstained from a retrospect so obviously coloured by partiality, and to have toned down the panegyric upon Pius the Ninth until it had become less like a rhapsody. However, Mr. Maguire probably understands the special class of readers to whom his volume is addressed. For others it possesses but a slight interest. The same story has been better told again and again; the same pictures have been supplied; in fact, Mr. Maguire goes over a vast space with which most persons are already familiar. To say, however, that he distorts history, is not to say enough; he imagines it, and all the while, as we firmly believe, is thoroughly honest and well intentioned. His notices of the Roman institutions of benevolence and judicial discipline are far from uninteresting, although even here he does not abandon his habit of converting everything into an opportunity for glorifying the Pope and the Sacred College. When, at length, he ceases to be an historiographer and a statistician, and sketches his own experiences, we have nothing more nor less than the florid diary of an exuberant Irish Roman Catholic traveller, who pours out long paragraphs of mellow rhetoric about the Coliseum, and brings Dian and Endymion into a moonlight foreground. In contrast with this, he has some amusing notes on the introduction of gas, the difficulties of the projectors, and the fanciful alarms of the population, which attributed to the marvellous method of obtaining light a poisonous epidemic-breeding property. However, the Prince and Princess Doria, to set the popular mind at rest, gave a grand entertainment, and on a sparkling winter's night twelve hundred jets of flame burst out like magic in their saloons and gardens, and among their statuary and shrubberies, Gas-lighting was victorious. The nobleman and the lemonade-seller simultaneously adopted it; splendid lamps were fixed on the staircases of the palace, at a cost of 75*l.* each, and the Vatican is now lighted with gas at an expense of about 40*l.* sterling every month during the winter. Before every portrait or image of the Virgin is now to be seen, says Mr. Maguire, a "trinity of brilliant lights." He adds an enumeration of the works undertaken by the Ninth Pius for the preservation of the Pagan

remains in Rome, especially the supplemental architecture by which the fractured ruins of the Roman Empire, the towering and tottering arches of the Coliseum, have been secured and upheld. Upon the whole his book, if blenished by sectarian arrogance and by indiscreet irrelevancies, is readable and entertaining; but many readers, however favourably inclined towards his religious and political theories, will regret that he has not advocated them with more moderation and candour.

*The Intellectualism of Locke: an Essay.* By Thomas E. Webb, M.A. (Dublin, M'Gee).—The object of this book, as explained by its writer, is to establish, by a rigorous analysis of the 'Essay concerning Human Understanding,' that Locke is neither a Sensualist, ignoring the existence of any elements of thought but those supplied by the external senses, nor an Empiricist, recognizing the existence of no elements of thought but those supplied by sense, external or internal. It professes to establish that Locke, on the contrary, as recognizing ideas of which intellect is properly the source, and cognitions of which intellect is exclusively the guarantee, is an intellectualist—an intellectualist in the sense of Reid and Kant. As Mr. Webb remarks, however, his conclusions are so utterly adverse to the accredited criticisms of the last 150 years, that his theory is liable to suspicion upon more than one ground. He tilts full in the faces of Sir William Hamilton and M. Cousin, and we are inclined to leave it to the pupils of those philosophers to submit his reasonings to a scrutiny. The questions raised are too remote from the ordinary lines of literary discussion for us to devote a large space to their analysis, while to investigate them briefly would be ineffectual. Therefore, we hand over Mr. Webb to enthusiastic students of Locke and the antagonistic philosophers.

*Yeuclade, and Lyrical Notes.* By S. H. Bradbury. (Houlston & Wright).—Words, words, words, Mr. Bradbury! "Il dit tout ce qu'il veut, mais malheureusement il n'a rien à dire." Mr. Bradbury's ambition is to say what things are like. In this small volume there are three hundred and fifty similes, mostly commencing with "like," in which there is seldom any likeness whatever to the thing intended to be symbolised. His similes, to adopt his own habit, are like mermaids; for however fair they look at first sight, their unfortunate ending is sure to turn the scale against them. He tells of

Radiant natures, rich as pearls

On sable velvet's gloom.

Though grief betimes lean on his heart

Like: image on a grave.

The stars with him "are ripe as orange gold." He sees one of them "like a diamond set in a sapphire urn." The form of one of his characters is

Like a graceful wave,

That breaks on banks of flowers.

With stars and rainbows round his head,

And sunfires round his pen;

His soul is wandering o'er the past,

And like an angel speaks.

Your toiling kings the wealthy world,

At sunbeams king the morn.

The heart of Freedom

Glimmers like a golden cloud

Hung in a summer sky.

He heard somebody

— warble a strain

Like to silvery globes of melodious rain.

He has dreams

That gush and teem with warbled notes,

Like sweets by zephyrs fanned.

And the pearls in her mouth are like

White pebbles in a brook.

Poor thing! And—still worse libel—

And lips whose luscious ripeness shows

Like flowering clover's hue.

The author must be lying in that same "clover." We quote these by way of example, because this simile-making is so successful in leading our young versifiers astray. It is bad enough to be continually told what things are like, instead of what they are; but still worse to be pestered in this way with unlikenesses. And this is a specimen of the way in which the author rushes into rhyme on any colourable pretext:—

A flood of azure brilliance rolled

Like sea-waves to my feet;

And emeralds set in bubbling gold

With blinding splendour beat!

And where I stood pale fire-tints poured  
Their rays from ruby walls;  
And burnished birds in rapture soared  
O'er glistening waterfalls.

We cannot imagine what Lord Palmerston can have done to so turn a poor poet's brain that he should write such lines as those, unless he has received the olden gift of malmsey:—

My Lord, thy kindness has filled me with things,  
Happy as angels blessed with silver wings;  
Sweet thoughts like sunshine fill my anxious brain,  
And gleam like lucent drops of tropic rain.  
A sense of gladness has come to my soul,  
Light, brilliant as the golden clouds that roll  
About the affluent West when sunset wanes,  
And paints with ruby glow cathedral pines.  
I see grace, beauty, in all outward forms,  
Glowing like rainbows through half-finished storms;  
My heart beats light and in luxurious swoon,  
Pellucid as the glance of May-skyed moon,  
I rest in beauty's smile, and round me shine  
Pearled tales, and Jasper goblets filled with wine.  
And all about me in my nightly dream  
Float fairy barques, like swans down azure streams,  
And marble statues stand in shining ranks  
Half draped in vines; and on high golden banks  
An alabaster lustre ever pours  
From dazzling rivers and from gleaming shores,  
Studded with diamonds set in blazing crowds  
On which are pictured swarms of whitest clouds.  
I walk by lakes as still as burnished glass,  
O'er whose transparent bosoms slowly pass  
The most intoxicating, cooling gales,  
Fresh from the blossomed spots where nightingales  
Warble their mellow songs, and where also dwell  
Large sun-tanned lilies, each a golden bell  
That trembles with its load of jewelled dew,  
Of amber, emerald, and vermillion hues.  
My Lord, thy kindness has these visions made,  
I've felt a thrill of glory by thine aid;  
I've felt new valour clasp my wearied heart,—  
A grand desire to act a manly part  
In life, though humble be my daily fare,  
With friend like thee I bravely look at care.

Whatever be the process, it will need the exercise of great caution if it be often repeated. We take two other stanzas, perhaps the best in the book, which are worth all Mr. Bradbury's finery and imitations, just by way of showing him where he is right for a moment, because content to say simply what he sees, instead of straining after all sorts of incoherent imaginings, and filling his pages with a motley masquerade of wilder words.—

## The Snow.

The snow is falling lightly  
Upon the trees and ground;  
The fields look white and holy,  
And the old Cathedral's crowned.  
The cottage roofs are covered,  
And it lies in village lanes;  
On the stiles, and the pathways,  
And all about the plains.  
'Tis driven against the windows  
In fantastic fleecy crowds;  
Like spots and feathery fragments  
Of the Summer's whitest clouds!  
It steps upon the meadows  
Light as blossoms from the tree:  
I love to see it floating,  
For it looks so wild and free.

The value of this may not be much to us, but the habit of steadily looking at the thing to be represented, if cultivated, would be of value to the writer.

*King Labour's Song-Book.* By John Bedford Leno. (Truelove).—This is a contribution towards one hundred songs in praise of Labour, by a working man who prints his own verses. The idea is a good one, even though the author should not prove of sufficiently high standing to place the crown on "King Labour's" brow. He is no wordy juggler. He is earnest in his motive, and honestly tries to get out what he means. His verse is rough—his words are not always ready; but the spirit is right, barring a little pardonable egotism, and, in one instance at least, a little looseness in the logic. For example:—

Why should the broadcloth alone be respected,  
And the man be despised who in fustian appears?  
While the angels in heaven have their limbs unprotected,  
You can't judge a man by the coat that he wears.  
But this is not a bad representation of some of Labour's doings:—  
The wizard king, Labour, walked over the land,  
The spade for a sceptre he bore;  
And each step he took left an Eden behind,  
Where a desert had frowned before.  
He levelled the mountains and blasted the rocks,  
Where for ages vast treasure lay hid;  
He showed Heaven the coffer where Earth stored her wealth,  
And laughed loud as he shattered the lid.  
And, as a specimen of our author's lyrical penny-

worth, we cannot do better than quote two stanzas of his

*Song of the Spade.*

Give me the spade and the man who can use it;  
A fig for your lord and his soft silken hand;  
Let the man who has strength never stoop to abuse it,  
Give it back to the giver—the land, boys, the land.  
There's no bank like the earth to deposit your labour—  
The more you deposit, the more you shall have;  
If there's more than you want, you can give to your  
neighbour,  
And your name shall be dear to the true and the brave.  
Give me the spade, 'tis Old England's glory,  
That fashioned the field from the bleak barren moor;  
Let us speak of its praise with ballad and story,  
'Tis brightened with labour, not tarnished with gore.  
It was not the sword that won our best battle,  
Created our commerce, extended our trade,  
Gave food for our wives, our children, and cattle;  
But the queen of all weapons—the spade, boys, the spade.

*Poems.* By Mrs. Frank P. Fellowes. (Smith, Elder & Co.)—Mrs. Fellowes has at least the merit of brevity—"an excellent thing in woman." More than that, she writes very pleasant verses, of the kind that make you fairly regret not having the time to read them. If not by any means deep, they run clearly, and have a sparkle of sunny feeling. At present, her singing is in an indicative rather than imperative mood. Her 'Fancies by the Fire,' however, call up pictures of the past with considerable power.

Mrs. Austin has reprinted from the *Athenæum* her two admirable *Letters on Girls' Schools and on the Training of Working Women*, with some very excellent additional observations.—Mr. Murray has published the ninth volume of Lord Campbell's much-abused and very amusing *Lives of the Chancellors*. One more volume will complete the work.—Messrs. Hogg & Son have given us Vol. VI. of *Selections, Grave and Gay*, by Thomas De Quincey.—Mr. Bohn has added to his "Historical Library" the second volume of Mr. Jesse's *England under the Stuarts*,—and to his "Classical Library" Vol. III. of a translation of *Strabo*, with Prefatory Memoirs and General Index.—Boys and girls of various ages will hear with pleasure of the appearance of new editions of the following stories by Capt. Mayne Reid:—*The White Chief*, *The Rifle Rangers*, *The Scalp-Hunters*, and *The Quadroon*, from the presses of Messrs. J. & C. Brown & Co., with pretty illustrations from the pencil of William Harvey.—The same publishers have given us a reprint of Mr. Grant's *Highlanders of Glen Ora*.—The following works appear in "new editions":—namely, Horace Smith's *Walter Colyton*, and *Poems*, by the Rev. R. Kennedy.—*Four Phases of Love*, by Paul Hehse, is translated by Mr. E. H. Kingsley, and we have before us a reprint of an old translation of *Rousseau's Confessions*, with a Preface by the editor of the *Reasoner*,—and Vol. XV. of Thiers's *History of the Consulate and Empire*, by John Stebbing.—We may also announce as a singular curiosity among translations the *Inscription of Tiglath Pileser I., King of Assyria*, by Sir H. Rawlinson, Fox Talbot, Esq., Dr. Hincks, and Dr. Oppert,—a full account of which has been already laid before our readers.—Mr. Barwell's *Cure of the Sick* has reached a second edition.—Mr. Wallace's *The Bible and the Working Classes* has reached a "sixth thousand,"—and the *Exeter Hall Sermons* a "fourteenth thousand."—In the "Parlour Library" we have *The History of a Flirt*, and Miss Landon's *Ethel Churchill*.—We must also announce *The Robber Chieftain: a Tale of Dublin Castle*, published by Mr. Duffy, of Dublin,—and M. Bell's *Deeds not Words*.—From the *Manchester Guardian* we have four little handbooks reprinted with the respective titles:—*Handbook of the Portrait Gallery*,—*Handbook of the Water-Colour Drawings and Engravings*,—*Handbook of the Gallery of British Paintings*,—and *Handbook of the Museum of Ornamental Art*, by J. B. Waring,—to which is added, *The Armoury*, by J. R. Planché.—From the Ossianic Society we have received a third volume of *Transactions*.—Mr. Tegg has issued an *Alphabet of Nations*, a coloured A B C book for children.

LIST OF NEW BOOKS.

Alford's Greek New Test. with revised text, Vol. 3, 2nd ed. 18s.  
Arnold's Second Latin Book, 7th edit. 12mo. 4s. cl.  
Beza's Latin New Testament, new edit. 12mo. 2s. 6d. roan.  
Culverwell's Light of Nature, edit. by Brown, 5vo. 12s. cl.

Currie's Principles and Practice of Early and Infant School Education, 8vo. 4s. cl.  
De Lase's Art of Illuminating and Mosaic Painting, 2 ed. 6s. cl.  
Dr. Porquet's First French Reading Book, 2d ed. 1st German Reading Book, 3s. 6d.; Italian Phrase Book, 3s. 6d.  
Duncan's Greek New Testament, new edit. 12mo. 4s. 6d. roan.  
Eusebius's Outlines of the New Testament, 8vo. 3s. 6d. cl.  
Footsteps of St. Paul, 7th edit. or 8vo. 5s. cl.  
Guichet's Italian & English Grammar, new edit. by Tommasi, 5s.  
Guy's (Joseph) School Geography, 24th edit. 18mo. 3s. 6d. sheep.  
Hook's Precepts and Practice, 8vo. 2s. 6d. cl.  
Krueger's Elements of Natural Philosophy, adapt. by Holmmer, 2s.  
Laneton Parsonage, by Author of 'Amy Herbert,' 8 ed. 2 vols. 12s.  
Mabel Vaughan, by Author of 'The Lamplighter,' 1s. 6d. cl.  
Matchmaker (Fic), by Author of 'Cousin Geoffrey,' 1s. 6d. cl.  
Murray's British India, new edit. 8vo. 5s. 6d. cl.  
Nesle's Catechism, new edit. 8vo. 2s. 6d. cl.  
Nelson's Shilling School Atlas, 4to. 1s. 6d. cl.  
Fairpoint's Uncle Sam and his Country, 8vo. 3s. 6d. cl.  
Parlour Library, 'Stewart's Harry Hamilton,' 1s. 6d. bds.  
Parry's (Sir W. E.) Memoirs, by his Son, 3rd edit. 8vo. 5s. cl.  
Practical Rhine Guide, 12mo. 2s. 6d. swd.  
Railway Library, 'Ainsworth's Spendthrift,' 1s. 6d. bds.  
Ruff's Autumn Supplement to Guide to Turf for 1857, 1s. 6d. swd.  
Sale's Korea, with Explanatory Notes, new edit. 8vo. 7s. 6d. cl.  
Shirley, a Tale, by Currier Bell, new edit. 8vo. 3s. 6d. cl.  
Sydenham's Notes of Lessons, 2nd edit. 12mo. 3s. cl.  
Three Little Kittens, new edit. 4to. 2s. 6d. cl.  
Throver's Questions in Arithmetic, 16th thousand, 12mo. 2s. cl.  
Virgil's *Æneid*, 2nd Book, No. 5, by Bradley, 12mo. 6d. cl.  
Virgilian Opera, Dymock, new edit. 18mo. 5s. 6d. bds.  
Walsh's Economical Housekeeper, illust. 12mo. 5s. half-bound.  
Watson's Short View of Scripture History, new edit. 3s. 6d. roan.  
Woodward's First Lessons on English Reformation, 18mo. 1s. 6d. cl.

OUR WEEKLY GOSSIP.

FOUR photographic portraits of the late Douglas Jerrold are being published by Messrs. Bradbury & Evans. The negatives of three of these portraits were taken by Mr. Diamond only a few days before the author's death; and are wonderful studies of a great man's character and power of expression; the fourth is an admirable photographic copy of Mr. Bailey's bust, now on view in the Manchester Art-Treasures Exhibition. The three life studies include one full front, the Humourist reading, with an intense energy of apprehension singularly happy; the others are a couple of profiles, both vigorous and shining with intellect. Next to an edition of his works, no memorial of Douglas Jerrold can be so acceptable to his admirers as these visible records of his personality.

The following note points out a serious wrong to which we beg to call the attention of Mr. Rowland Hill. Mr. Murray and Mr. Borrow, we think, will look at once to their copyrights:—

"Pin Mill, Ardwick, Manchester, Sept. 14.  
"You have frequently spoken about the injustice of American publishers towards English authors, and you have complained of the looseness of booksellers in our Colonies in encouraging the sale of reprints; but I do not remember seeing any mention of a third evil, of which I will give an instance. During last week, a friend of mine, staying at Abergele, received by post copies of 'Lavengro' and the 'Romany Rye'; they had been published by Harper Brothers for 50 cents each; they were bought at Toronto, forwarded by the Anglo-Saxon through the book-post, and delivered as ordinary English books in Wales. Surely it is of little consequence exercising a strict search at the Custom-house if the post is to be used as a means for the introduction of pirated literature."

"I am, &c. JOSEPH THOMPSON."

We have to report the sudden death of Dr. Lichtenstein, Professor of Natural History at the University of Berlin, and Director of the Zoological Museum of the same city. Born at Hamburg, on the 10th of January, 1780, Dr. Lichtenstein went, in 1802, to the Cape of Good Hope, where he stopped several years, first as tutor and physician in the family of the Dutch Governor, General Janssen (whom he accompanied on his various expeditions into the interior of the colony), and then, at the outbreak of the war with England, as field physician of the battalion of light Hotentot Infantry. In 1806, when the colony was taken by the English, he returned to Europe, and became attached to the University of Berlin as early as 1810. His fame as a zoologist was as far spread as it was well founded, and his 'Travels in Africa,' (2 vols. Berlin, 1810-11), maintain their reputation even after the lapse of nearly half a century, and after so many more recent investigations and discoveries.

Some curious details about one of Byron's minor poems are given by a Correspondent, who adds his name and address:—

"Commercial School, Leipzig, July 5.

"Among Lord Byron's 'Occasional Pieces,' there is one headed 'From the Portuguese'—Tu mi cha-

mas,' followed by 'Another Version,' without any date or note being appended to either. What may have induced the editor (I have before me Murray's one-volume edition, 1846) to place these verses between those of the year 1813 and 1814, I am at a loss to account for; but I am enabled to communicate a fact which, I doubt not, will be interesting to the lovers of the great poet. Looking, the other day, over the autographs in the possession of my friend and colleague, Signore Bartolomeo di Renier,—Professor of the Italian Language and Literature, a native of Venice, and nephew to the defunct Doge Renier, the predecessor of Manini,—I was struck by the sight of a sheet of paper, having a miniature full-length engraving of Byron (at the age of nineteen) attached to it, and bearing his unmistakable, distinctly legible handwriting in pencil. Judge of my surprise when, eagerly reading the lines, I found them to run as follows:—

You call me still your Life! Oh, change the word;  
Life is as transient as the inconstant sigh;  
Say, rather, I am your Soul! More better [sic] that  
name,  
For, like the Soul, my love can never die.—Byron.

Turning round to my friend for an explanation, he informed me that Byron—with whom he had become acquainted at Venice, and in whose company he used almost daily to swim—penned those lines for him one morning after their return from their aquatic exercise,—Signore Renier, in his then youthful ardour and buoyancy of spirits (he was Lord Byron's junior by ten years), being constantly in the habit of addressing the poet by the endearing terms, 'Vita mia.' The year was 1819. There can be no doubt that the above lines were the first rough off-hand version, subsequently improved upon in the paraphrase commencing 'In moments to delight devoted' (and we know now what was implied by that delight), though also retained and published in its original state, with an emendation, however, of the glaring solecism and the omission of the 's' in the second line, converting the noun into an adjective.—I am, &c., Dr. D. ASHER."

A proposal is under consideration for a common Archaeological Society for the united Counties of Surrey and Kent. In a prospectus, now lying before us, the Committee who have charged themselves with the task of wedding the two shires, make the following statement of facts:—"The Surrey Archaeological Society, established in 1854, has met with considerable success, and at present numbers 470 members, of whom 70 are life members. Periodical meetings are held in various parts of the county, and the papers then read are printed and gratuitously distributed to the members. The interest felt in these meetings, and their accompanying exhibition of local antiquities, has brought to light much valuable information, while the visits paid by the Society to remarkable places and edifices, produce impressions far stronger than the best written descriptions could do. Excavations undertaken by the Society have also been attended by several interesting results. By extending the present sphere of action, and adding to the number of its supporters, the utility and welfare of the Surrey Society may be greatly increased, and at the same time means will be afforded for another county to join in its labours. As an instance of the success attendant upon the union of two important counties, the Historic Society of Lancashire and Cheshire, a most flourishing institution, may be cited. Kent, the neighbouring county, is one peculiarly adapted for a friendly union with Surrey, the connexion between the two counties being naturally so much more intimate than that existing between any others. Both contain suburbs of London, and both have within them the ancient archiepiscopal residences, whose history brings them into continual combination. The antiquarian riches of Kent are almost inexhaustible—the Roman, Saxon, Norman, and every other era of the past being represented by relics existing in almost every part. But abundant as is this harvest the labourers have been almost entirely wanting; otherwise the invaluable Faussett collection of Anglo-Saxon Antiquities collected in Kent would never have been permitted to leave that county, to become the property of a Liverpool merchant. This fact is but



one of many that might be adduced in proof that Kentish archaeology greatly needs a representative. The county histories abound in errors, even Hasted being meagre and imperfect for a day of antiquarian knowledge like our own. The Chapter libraries of Canterbury and Rochester, and many of the private collections of the county, contain much valuable information hitherto unexplored; while the ancient laws of Romney Marsh, the History of Gavelkind, the peculiar immunities and customs of the Cinque Ports, and many other points of great importance, furnish most interesting illustrations of early history and ancient customs. The ecclesiastical antiquities and the noble mansions of Kent, unsurpassed in number and variety by those of few, if any, of the other English counties, are in themselves a source of inexhaustible interest. Enough has been said to show that Kent possesses ample materials for a Society's labours—and it is urged that by consenting to the proposed union with Surrey, a Society competent to undertake such labours will be immediately formed.—This proposal has not, however, met with general acceptance. A meeting of Kentish antiquaries is about to be held to take measures for the formation of an independent Society; and certainly if a county is rich enough in materials for that purpose, Kent is the county.

A Correspondent at York writes to assure us that our assertion, that the couplet—

My lord is my lord for a year and a day;  
But my lady's my lady for aye and for aye,—

expresses a local whimsey and not a local fact is correct—the Messrs. Kelly's certificate to the contrary notwithstanding. We may add, that we find our view corroborated by a local guide, called Sampson's "Handbook for York," which speaks of the custom, established in the humour or courtesy of the citizens, as no longer in use even in the civic circles.

Our attention is drawn by a Correspondent to an advertisement in our pages of last week which transgresses the wild licence of even the most covetous appropriators of critical testimony. In noticing a Guide-book of the Great Northern Railway on the 22nd of August—a book which we certainly could not praise for its style, tone or knowledge—we took occasion to speak of a certain railway tour on the Great Northern line and its iron affluents which we had ourselves lately made. Of this tour—which brought us within reach of three church services on the same day—we said, in recommendation to our readers: "we have found pleasure and profit in it." Mr. Meason, we find, appropriates and applies these words to his book, to which they assuredly do not apply, either in fact or in syntax.

"That no one has been duly liberal in praise of the Danube, I am again reminded," writes a Correspondent, "on returning, after a lapse of some years, to this noble stream. Few have written at all of the upper part of the river. I do not here refer to its course, from Donaueschingen to Ulm, which is something like a *terra incognita* to English pedestrians and boaters, but to the voyage undertaken at the point where the average traveller has recourse to steamboats,—to the first day from Donauwerth downwards. The starting-place itself, should the moon be shining on the brimming river, which here makes a considerable circuit, with its wooded inlets, islets, and promontories, and its three bridges of different lengths and characters, makes a Vandorneer of the highest quality,—or rather a landscape combining more picturesque features than Vandorneer ever found among the canals and flats of Holland. Neuburg, again, overcrowded by its pompous ducal *château*, has a character and a beauty which offer some foretaste of the towns and palace-monasteries of the Danube; and the mile of rock scenery, called 'Lange Wand,' may challenge the best passage of the *Rheingau*, so far as rock and stream are concerned,—the absence of castles being compensated for by the presence of foliage, instead of the trim monotonous vineyard, which (as Hood so graphically described it) gives the scenery an air 'as if it was drawn on granulated drawing paper.' Here, however, the wild features of the scenery are oddly contradicted, in every sense of the word, by one of the ex-King of Bavaria's pieces of pedantic classicism,—the *Befreiung's*

*Halle*, designed by Herr Gärtner, in commemoration of the War of Liberation. This is still unfinished, and circled by a network of scaffoldings: a temple of red stone, surrounded by colossal white figures at intervals,—from the river resembling some giant specimen of the pie-maker's or confectioner's art, rather than shrine Grecian or Gothic. How strange and sickly must have been the fancy, how perverted the knowledge of Art, which suggested the painful hoisting up of heaps of heterogeneous materials and details to spoil as fine a river-site as Europe can show! Under the new reign, however, it is possible that this piece of classical Vandalism may never be completed, and its want of German reality precludes the fancy that some Louis of Bavaria to come may do what the last Louis of France has just accomplished for the Louvre. It is more to the purpose that the citizens of Ratisbon are beginning to make some small stir towards completing their peculiar and solemn cathedral, by talking of building the two spires on the towers. Here is a good, and permanent, and genuine direction given to German art,—but not by the conjuring up of such elaborate rubbish (the word will out) as the rhyming King Louis delighted in, which contains as little truth and poetry, with all its pretension, as the most professedly conventional masque, in which court ladies figured as virtues, statesmen as sages, and captains as the gods who shook Olympus, by way of compliment to some ill-favoured princess on her marriage, or to some luckless babe, who royally entered this world of struggle and of sorrow."

#### FINE ARTS

*Hints for Sketching Trees from Nature in Water-Colours.* By Thomas Hatton. (Rowney.)

THIS is a colour-seller's manual, with fifty pages about Art and a hundred about Messrs. Rowney's colours. Mr. Hatton is the author of several elementary works, but is not very original in his elementary ideas. Breadth is his great word, and breadth does not always mean truth. What a dreadful thing a drawing-master's world would be with sponges and cabbages for trees, coloured snowballs for clouds, and washes for foregrounds! His writing is full of convention. A sketch he defines as a "few telling touches"; which is not a definition. People begin by sketching, whereas sketching is only attainable by extreme power and knowledge. It takes a lifetime to know what are the primary parts of a landscape. A clever man can take a few notes of a speech, and seize its very essence,—the novice takes down a rhetorical flourish as a mere bit of fact, which is no more the speech than the pudding-cloth or the pot is the pudding.

The beginner at trees, unless he draws that simple creature of the forest, the gallows tree, and confines himself to that, is lost at their intricacy and difficulty, and therefore, despairing of truth, does as the old artists used to do, splashes about in ciphers, and writes the name under. The lover of trees, however, finds, after patient watching, when the sunshine has melted out of them, and the sunset fire has waned, and the twilight has bloomed with stars, and all such changes are passed and gone, that he sees a certain quantity of sharp, clear, beautiful detail, and a certain quantity of shapelessness and mass, *alias* breadth. The mass he lumps in, the details he sets to work, if he is a true man, and no sham, and chisels out. He does not make it all detail, like the Pre-Raphaelite, or all smoke, like the old lover of breadth. Of course, if he cannot afford time to work out the detail, we must call him at once a sketcher for trade, and leave him with the geni's blessings. The elm's plumes and crests, the sycamore's starred masses, the birch's droopings, the poplar's spires, the ash's feathers, the fir's stubbornness, the beech's flakes, are not for him; he has his tricks and his clever, telling touches, and knocks about in the old drawing-book way accordingly. His market is the boarding-school stereotyped; he does not want to find out variety, but uniformity. Mr. Hatton vexes us about washes, tintings, piercing lights, blottings-out, scratching, and other tormentings of innocent paper. Burn such books, say we to the student, and look

and think,—once see what there is, and you will see how to do it. For every wash and colour there are five hundred ways of using, and one of them you must stumble on, perhaps the best. *Practice* and see how the best men worked, and avoid all shilling vade-mecums, which are impudent, pretentious, bounded, conventional, timid, and false. No hour in the day is a tree what it was an hour before; the sunshine plays some fresh trick, Nature being progressive and pliable. *The present moment is always the best with Nature.* Haste and money-making begot breadth; it taught us to reduce work to the quickest and simplest elements. Breadth was a lie, invented to save labour and cheat the purchaser. It was the Birmingham gloss on the worthless article. Our advice is, learn the tree you wish to draw piecemeal. Draw finished studies of single leaves with every vein and flaw; draw a single bough with every knot, spike, and curve, study the boughs in small masses, then put them together. Learn the tree's anatomy in winter, its dress in summer, and block it out in light and shade; draw carefully its jagged outline, study every wrinkle in its trunk, get its local colour, its peculiar spots and stainings, and then its broader effects; build up your knowledge brick by brick. It is, after all, the old Bacon question over again, whether to learn from the out to the in, or from the in to the out. Bacon sapped his way from the outer wall to the citadel, and when he won his entrance, he found Knowledge seated on her throne, and at her feet her treasure. It should not first be detail, or first mass, but both together. We go from single words to sentences in all arts, and why not in the *beaux arts*? For general matters, Mr. Hatton is useful enough; he teaches us not to lump foliage, not to spot and pepper the lights, but to see their diffusion, limit, and connexion. Beginners' trees are generally all mash or all tone. They must be white in sunshine as trees are, and hollowed out into those singing caves, where birds sing in defiance of the heat. Student, you need not travel to learn this! Nature is at home in Kensington, and is not yet driven from Wormwood Scrubs.

**FINE-ART GOSSIP.**—The Executive Committee have determined to close the Manchester Art-Treasures Exhibition on the 15th of October. It had been thought possible to keep it open till the end of the month, but the shortness of the days and the damp generally so prevalent at that season of the year have driven the Committee to that resolution. On Saturday last terminated a series of sixpenny Saturdays, and the building was visited by 22,000 people—the greater part workmen and their families. They were remarkably well conducted, and no accident whatever occurred. The pictures of 'The Three Marys' and 'The Death of Chatterton' were by far the most popular objects of attraction. The attendance recently has been very excellent. The best days seem to be Tuesdays and Fridays, when a superior class of people visit the building. Thursdays have always been set apart for season tickets and heavier payments.

A writer perfectly acquainted with Chester Cathedral gives us some further information on a subject to which we alluded last week. He says—"The sculpture on the boss in the Lady Chapel at Chester Cathedral is the Trinity, represented in the usual medieval manner (a crowned figure supporting a crucifix and a descending dove). The face of the principal figure is destroyed, but, in other respects, the carving is not seriously injured. Its date is of the latter part of the thirteenth century. The large plaster rose with which this sculpture was covered was probably of much later date than the time of the Reformation. It was known to be of plaster before the works now in progress were begun; and the original carving was supposed to have been destroyed until brought to light by the removal of the rose, in preparation for a restoration of the boss in a style corresponding with the surrounding work."—We repeat, let medievalists look to their roses!

The following note is from a Correspondent:—

"Croydon, Sept. 10.  
"In November 1844 I sent you a short notice of



a fresco or distemper painting of St. Christopher and the Saviour, being discovered during some restorations in Groydon Church, it was on the south wall (the oldest part of the church), and supposed about the time of Edward the Third. Since my last communication little has been done to the church until lately; but last week a work of great improvement was commenced under the superintendence of Mr. Scott, viz., the taking down an unsightly gallery which blocked up the elegant arch at the western end of the nave, and the removal of the organ to a more suitable position. This has developed not only another portion of St. Christopher, with the accompaniment of a mermaid holding a mirror, and a number of fish swimming in the stream which he is fording, but a forcibly designed figure of St. George mounted on a white charger, richly caparisoned, attacking a dragon; the knight and his horse are very perfect, but only the foreclaws of the dragon are visible; to the west of these figures is a damsel elegantly draped, bound hand and foot, apparently in an attitude of prayer, the colours are still fresh, and some remains of silver illuminating may be traced on a close inspection. The churchwardens have promised that a temporary covering only shall be used when it is covered up, but at present it is open for the inspection of those interested in such matters.

—Yours, &c., THOMAS WELLER.

The Brussels General Art Exhibition was opened on the 1st of September. The Catalogue contains 1,260 numbers, of which (besides Belgium), France, Germany, and Holland have contributed the greatest part. As to paintings, the Exhibition is said to be rather poor. There is much rubbish; and great names, with a few exceptions, are looked for in vain. Sculpture, we learn, is better represented. M. Guillaume Geefs has exhibited two well-executed marble busts, and a large group, also in marble, 'Le Lion amoureux.' From M. Jean Geefs there is a bust of Christ, worthy to be mentioned; and M. Fraikin, besides two charming marble busts, 'La Fée des Eaux' and 'La Fée des Bois,' has sent a sweet figure, 'Le Sommeil.' A 'Young Faun' by Herr Ludwig Sussmann, the German sculptor, belongs to the best plastic works of the Exhibition.

In consequence of a summons, printed in a recent number of the *Cologne Gazette*, a Committee has been formed at Nassau, the birthplace of the late Freiherr vom und zum Stein, for the erection of a monument to that great statesman and patriot. It is hoped that the idea of this monument will find an echo throughout Germany, and that by the 25th of October next (Stein's centenary birthday), numbers of local committees will have been established, to take the matter in hand.

The German papers contain the following biographical notice of Prof. Rietchel, the sculptor of the Goethe and Schiller group at Weimar, whose name has been so frequently mentioned these last weeks:—Ernest Rietchel was born in 1804; he visited the Dresden Academy since 1820, and became pupil, in 1826, to Prof. Rauch, at Berlin, under whose tuition he soon made himself master of Form in the full sense of the word, combining his master's elegance and gracefulness with an earnestness of purpose peculiar to himself. Since 1832 Rietchel has been Professor at the Dresden Academy, equally valued as a teacher and as an artist. His most important works are, the statue of Thier, the great agriculturist, at Leipzig; the statue of Lessing, at Brunswick; the busts of Luther, and August the Second, Elector of Bavaria, for the Walhalla. Besides these, he has made a great number of portrait busts and *rievieri*, all distinguished by life-like truth and spirited conception. His last great work, the group of Goethe and Schiller, will establish his fame as one of the first sculptors living.

#### MUSIC AND THE DRAMA

SADLER'S WELLS.—The re-opening of this theatre under its regular management at this period of the year may fairly be regarded as the commencement of the dramatic season. The fact, that the five-act drama is here exclusively the leading piece of every evening, gives to this annual event a peculiar sig-

nificance. Here legitimacy triumphs, and it may be added, without the assistance of spectacle. When the experiment was first tried here, splendour and novelty in scenery and costume were admitted as expedient helps. To some extent they were necessary also; for the theatre had, indeed, after years of neglect, to be properly furnished for the highest dramatic ends. But after many revivals, the stock of properties has accumulated beyond the need of replenishing, and pieces are accordingly repeated with the accessories which, in time, have acquired the epithet of "usual." There is still the same amount of illustration at the Islington theatre; it no longer, however, appeals for approbation on the ground of newness, but simply on that of appropriateness. There is no boast of lavish expenditure; but the character of judicious is claimed for the general arrangements, and completeness in regard to the details of the performances. On Saturday, the proceedings of the season were inaugurated with the tragedy of 'Hamlet,' which was presented with all the appointments of its original revival. Mr. Phelps was the hero, and presented us with that admirable reading of the character which has obtained him so many adherents. On this occasion he was more than ordinarily cautious and careful, and weighed evidently the force of every phrase before it was enunciated. The general style of his acting was characterized by its chastity, and the neglect of all merely stage effects. There was a serenity, also, in the air of the character that was almost religious, and befitted the great theme of immortality with which the mind of Hamlet is constantly burthened. In one point we think Mr. Phelps is deficient. He gives no prominence to his love for Ophelia, and his scene with her in the third act has no indications of tenderness. The interpretation of this scene, we know, is the most difficult of histrionic problems, and we have seldom or never been entirely satisfied with any actor in it; therefore, we would not bear hardly on any professor on account of short-comings, whether of conception or execution. That especial difficulty, however, should lead the actor to study it all the more, and seek to express the complex emotions that are the bases of its significance. More particularly should he avoid a cut-and-dry exposition that has perhaps nothing to recommend it but its facility and simplicity. This is to evade, not to subdue, and to miss winning a victory, because you will not fight the battle. One great improvement has been introduced into the cast. The general tradition of this theatre has been, that *Ophelia* might be adequately represented by the soubrette actress of the establishment, and the practice has been constantly in accordance with the theory. This absurd rule has been at length broken through; and Miss Jenny Marston had to support this very interesting part, which she performed with much elegance and emphasis, though to the mad scenes she was not altogether equal, either in regard to the songs or the broken snatches of lunatic reverie, which require more organic power and a deeper poetic feeling than this young lady possesses. But on the whole, her acting of the few scenes with which she had to deal, was respectable, and a considerable improvement on the unfortunate waiting-woman style which it has so happily superseded. Could, however, nothing more suitable to the period and manners of the play be devised than a white satin drawing-room dress for the heroine? The general costume of the drama is antique, picturesque, and fantastic;—this bit of modern life-reality is out of keeping with the rest. To these few remarks, we have only to add, that the entire performance was diligently elaborated; adequate rehearsals having insured complete accuracy on the part of every one engaged in the representation. The house was exceedingly full, and the audience of a sort to prove that Mr. Phelps's reputation among the more respectable circle of play-goers has not at all diminished. When it is recollected that such people must really go out of their way to visit a remote suburban theatre like the present, this is a fact that acquires extra force from the circumstances amidst which it is demonstrated. The moral effects which attach to it have been too long acknowledged to be now either disputed or laboriously argued. A mere allusion suffices.

On Tuesday, Mrs. Charles Young, who has gained a reputation in Australia, made her debut here, as *Julia*, in 'The Hunchback.' Her performance was satisfactory. Her voice is clear and flexible. It is true that she evaded the full expression of passages of force, and that her tragic power is evidently limited; but of her intelligence and pathos no doubt can exist. Miss Fitzpatrick performed *Helen*, and in the great scenes was not only elaborate, but brilliant.

ADELPHI.—On Monday, the nautical drama of 'The Pilot' was revived, that the veteran, Mr. T. P. Cooke, might re-appear in a character which he once made celebrated—that of *Long Tom Coffin*. This, indeed, was something like an effort for an old actor, requiring activity and physical energy seldom found even with the young. We could detect no feebleness;—the prominent attribute, indeed, was a peculiar vivacity that was never absent from the delineation, and maintained the excitement of the audience through the entire three acts. A Fitzball drama like this is really a curious thing. One scarcely knows, or cares to know, what it is all about; hardly a point in the dialogue is mark-worthy; the situations lead to nothing important, nor are they expected to do so, in the interest of the action;—yet there seems always something doing on the stage, and, as scene follows scene, we partake of the bustle, and are content with the whirl of incidents by which we are perpetually mystified, and carried round and round without progress, until the gyration ceases, and the descending curtain stops the motion of the diorama. Such were the sensations experienced by us while witnessing the Mystery of 'The Pilot,' to whose person and character, by the way, Mr. Selby did great justice. Ever and anon, our perplexity was relieved by the appearance of Long Tom—a genuine portrait, in the midst of shadowy abortions, resembling nothing actual on sea and land. The house was, like the Thames, "without o'erflowing, full"; and the audience, if not instructed, were evidently amused.

MUSICAL AND DRAMATIC GOSSIP.—A friend writes from Austria:—"I have been seldom more pleased with music than I was the other evening at Ischl, by the performances of a stringed Quartett. This, however, was nothing solemn, scientific, or orthodox,—not the well-selected four violins, for which Haydn, Mozart and Beethoven wrote, to delight the nobles of Austria,—but something wilder and less canonical, a pair of *sitters* and two guitars; one of the latter having three extra bass strings. The *sitter*, it is true, as Herr Carl Laue has already acquainted the Londoner, stands now high in fashion in this country. Princesses learn it, and young officers adopt it in place of the more sentimental and limited guitar. It has compass, with its eight-and-twenty strings: it has character and capability. The peculiar poignancy of its tone (owing, in part, to the metal ring worn on the thumb of the player) is telling without being unpleasantly acute. A group, I fancy, in a *ballet* orchestra, might effectively enhance or replace the baker's dozen of harps, so dear to M. Berlioz—but so ponderous, costly and unattainable. But I heard the *sitter* brought to bear in nothing so orderly. My two were fingered by a couple of those jovial, neat, and intrepid-looking fellows, whose picturesque dress, honest air and good-natured courtesy (never servile) add such a charm to this enchanted district. They played slight things, it is true:—Austrian dance-tunes, Styrian airs, such as have suggested many a fancy to the Webbers and Meyerbeers of music—or such as have been suggested by 'Preciosa' or 'Der Prophet' heard in some town theatre, which have been "rhymed, twirled" and contrived to suit the taste of the *Satzkammergut*—but never wrested out of the harmony—as bag-pipe violations of regular music are apt to be. One or two of the *Ländler* were as wild and as lovely, after their kind, as the wayside cyclamens and gentians, which add so much minute beauty to the scenery of the still forests up among the lakes. Nothing could be more racy and relishing than the performance to ears crammed with the jaded music of great towns;—it was per-

fect in rhythm, in accent, in deliberate archness and provoking spirit. Such dance-music as makes the spell of Oberon's horn intelligible, and by none more blithely enjoyed than its makers. They would have played and sung all night (and capably they sang their Styrian part-songs) inspired by the obvious pleasure of their English listeners—had we not been merciful, and contented ourselves with only an hour and a half of this brave and genial music."

While such pleasures as these are regaling travellers during this unparagoned autumn, the Capitals are already beginning to draw together their forces for their winter season; the list of the artists to appear at the Italian Opera in Paris, on the first of next month, is announced, and as yet includes little novelty;—the principal ladies being Madame Crisi, the wondrous, Mesdames Steffanone, Alboni and Nantier-Didié. — At the *Théâtre Lyrique* the management, heartened by the success of 'Oberon,' has produced a version of 'Euryanthe,' not very strongly cast, and with the interpolation of Weber's 'Invitation à la Valse' scored by M. Berlioz to do duty as ballet-music. We submit that one who, in print, is so passionate a purist as M. Berlioz should not have allowed such a piece of tampering as this, recollecting, nevertheless, that, as conductor, he has directly sanctioned a yet greater abuse—the giving one of Gluck's bass songs to be shouted out by a crew of bass choristers. The operetta 'Le Cousin de Marivaux,' which (according to the new fashion) has been written for Baden-Baden, will shortly come forth at the *Opéra Comique*.—As close to this small gleanings of theatrical news, we may mention that Signor Ronconi, with Signor Tagliafico, is on his way to America,—we hope only for a winter visit. There are few of its favourites whom London can so ill spare.

We find that the conductor of the Strand Theatre has quoted on a separate playbill the opinion of the *Athenæum*, as disproving the charge of immorality brought against the piece by other critics. But the quotation is unfairly made,—the concluding remark, in which such immorality is expressly condemned, being omitted. This, we know, is a common practice with advertisers of all classes; but the practice is not the less censurable for being general.

A few additional facts serving to illustrate the Weimar Jubilee are, perhaps, not unwelcome to our readers. Before all things we have to mention that, also, the last day of the festival distinguished itself by the hearty and spirited way in which it was celebrated. It was dedicated to an excursion to the Wartburg, where the guests, entertained at the expense of the Grand-Duke, admired the new frescoes by Prof. von Schwind, as well as the old fresco by Martin Luther,—we mean the inkspot on the wall of his study, religiously freshened up every returning spring for the benefit of tourists. In the evening a grand concert, conducted by Dr. Liszt, closed the proceedings of the three days, which, no doubt, represent an epoch not only in the history of the little town of Weimar, but also in the history of the German mind in general. The following days were marked by several acts of gratitude and acknowledgment. The sculptors, Herren Rietschel, of Dresden; Schaller, of Munich; Gasser, of Vienna; and Herr Miller, the bronze founder, of Munich, were presented with the honorary citizenship of the town of Weimar; the grandsons of Schiller and Goethe (who were present during the three days) had the Grand-Ducal orders of the White Falcon conferred on them; and Fräulein Seebach, the actress, was honoured by the reigning Grand-Duchess with the princely gift of a diamond necklace. The Grand-Duchess Mother at the same time assigned a sum of 10,000 thalers for the foundation of an institution for the blind and the deaf and dumb, to be erected in memory of the Grand-Duchess Louisa, the wife of Karl August. As to the monument of Karl August, the foundation-stone of which was laid on the 3rd of September, its execution has been entrusted by the Grand-Duke, immediately after the unveiling of the Goethe and Schiller group, to Prof. Rietschel,—or to Dr. Rietschel, we should say, for before he left Weimar the University of Jena had sent him her Doctor's diploma. The literature called forth by the jubilee

is very numerous,—books and pamphlets written for the occasion cover our table. We only mention—'Weimar's Genius, Eine Festgabe, von G. Treumund (Dr. Steinacker),'—'Karl-August-Büchlein, Lebenszüge, Aussprüche, Briefe und Andenken von Karl August, Grossherzog von Sachsen-Weimar-Eisenach, von A. Schöll,'—'Karl August und Goethe, und die Lustigen Tage von Weimar, von A. Diezmann,'—'Karl August und die deutsche Politik, von Prof. Droysen.' By far the greatest interest is awakened by a collection of Karl August's letters to Schiller, which has been published for the jubilee, and dedicated to Karl August's grandson, the present Grand-Duke, by Schiller's only surviving child, Freifrau Emilie von Gleichen-Russwurm. In these simple, hearty lines the character of the prince, who in the intercourse with the great men of his country showed but his own greatness, shines forth in all its strength, kindness, and amiability.

#### TWENTY-SEVENTH MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

TUESDAY.

##### SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE

'On a Law of Temperature depending upon Lunar Influence,' by Mr. J. P. HARRISON.—The author commenced by saying that, although the question of lunar influence on the atmosphere of our planet was very generally considered as set at rest by the investigations of M. Arago, yet he felt very confident that he was in a position to prove the law he was now about to announce without fear of contradiction. He had reduced and thrown into the form of tables and of curves 280 lunations, with the corresponding mean temperatures; and the laws at which he had arrived were, first, between the first and second octant the temperature immediately after the first quarter, both on the average and also, with rare exceptions, in each individual lunation is higher than the temperature shortly before the first quarter; secondly, and more particularly the mean temperature of the annual means of the second day after the first quarter (or the tenth day of the moon's age) is always higher than that of the third day before the first quarter (or the fifth day of the lunation). The tables and curves accompanied the essay, which illustrated these laws at great length.

'On the Surface of Centres of an Ellipsoid,' by the Rev. G. SALMON.—This communication could not be made intelligible to the non-mathematical reader.

'Secular Variations in Lunar and Terrestrial Motion from the Influence of Tidal Action,' by Mr. D. VAUGHAN, of Cincinnati, Ohio.—Laplace concludes from his elaborate investigations, that the rotation of the earth is not affected by the occurrence of the tides; nor do his formulæ reveal any permanent alteration in the motion of the lunar orb which disturbs the repose of our oceans. These results, announced by so high an authority, might be received without a careful examination if the fundamental principles of natural philosophy did not discountenance the idea of an actual creation of power by lunar attraction. The tides constitute an important mechanical agent; and, could their whole force be rendered available, it would be found adequate to several hundred times the labour of the human population. So great an amount of motive power, whether appropriated to the great purposes of nature and art, or wasted in overcoming friction, cannot be produced without some expense; and my present object is to trace the change which it involves in the motions of the earth and the moon. As the extreme disproportion between the momentum of the oceanic waters and that of the planetary bodies is the chief source of error in these investigations, I shall commence by showing how the tidal action should operate, if the moon moved around the earth in an exact circle, situated in the plane of the equator, and not more than 34,000 miles in diameter. Her periodical revolution, in this case, would occupy nearly twelve hours, and the lunar day would be about twenty-four hours in length. The tidal action on the seas nearest to the moon would be almost twice

as great as on those most distant; the former being about 5,000 times, and the latter over 2,500 times, the disturbing action now exerted by the moon on the watery domain. The aqueous appendage of our planet would, in this case, form two great moveable oceans, sustained on its opposite sides by the attraction of our satellite, and keeping pace with her movements. Without taking into consideration the oscillations of the solid part of the earth which might possibly occur in these circumstances, it is evident that there should be a general flow of the waters from west to east; and though the current may be alternately reversed in deep channels, the force propelling it in an eastern direction should always maintain the ascendancy. A vast body of water, circulating around the earth from west to east, could not fail to accelerate its rotary motion; although the result would not be exhibited by the formulæ of Laplace. The moon, in this case, would sustain a loss of momentum to a more considerable extent. It is well known that the attraction of mountains modifies the direction of terrestrial gravity in their vicinity; and that a plumb-line on that part of the equator immediately west of the Andes would be slightly deflected to the east. In the case we have supposed, the direction of terrestrial gravity would experience a similar deflexion at places in conjunction with the moon from the attraction of the excess of waters which swelled behind her. Accordingly, the lunar orb would be drawn, not directly to the earth's centre, but always to a point a little westward of it, and a constant loss of motion would be an inevitable consequence. It would be different if the earth could preserve an invariable form, for in that case its attraction on a satellite being always directed to the centre, or alternately deflected east and west of that point, the loss and gain of motion should be evenly balanced after one or many revolutions. Other investigations lead to the same conclusion. A satellite revolving just beyond the confines of our atmosphere, would alternately accelerate and retard the movements of one more distant; and physical astronomy shows, that, in our planetary systems a like periodicity results from the inequality of the times in which the several planets perform their revolutions. But, as the tide-wave rolls around the earth with the same mean angular velocity as the moon, their mutual action will not exhibit the periodicity which characterizes planetary disturbances. In the analytical solution of this problem, the equation depending on the difference of motion of the moon and the tide-wave would acquire by integration a divisor infinitely small; and this proves its secular character. If Laplace finds no such divisors, it is because all the modifications in the action of the moon on the waters of the ocean are not embraced in his investigations on the subject. Leaving the supposed case, we shall now pass to the actual condition of the agencies concerned in tidal phenomena on our globe. At her present distance the revolution of the moon occupies more time than the earth's period of rotation; and the tidal wave which has the greatest disturbing influence being always east of our satellite, must add to its velocity, while it retards that of the earth. We may remark, however, that the additional velocity imparted to the moon would give her a larger orbit, and increase the period of her revolution. Hence the orbital motion of the moon, as well as the rotary motion of the earth, sustain a loss depending on the difference of the tidal force on opposite sides of our globe, and so very insignificant, that some millions of years would be required to cause a reduction of one per cent. in the moments of these vast bodies. I must, however, question the results of Laplace, who finds that the change in the length of the day has not amounted to the  $\frac{1}{10}$ th part of a second during the last 2,000 years. This conclusion is based on a comparison of ancient and modern eclipses; and the time of the earth's rotation is thus ascertained from the revolutions of the moon, making corrections for the disturbances operating on the latter body. But all the disturbing influences have not been yet taken into consideration; and as the one noticed in the present article operates on the earth and moon, we cannot regard either of these bodies as



an infallible chronometer for measuring the vast ages of eternity.

'On the Light of Suns, Meteors, and Temporary Stars,' by Mr. D. VAUGHAN, Cincinnati, Ohio.—Modern science recognizes shooting stars, fire-balls, and meteoric stones, as bodies which enter our atmosphere from external space with immense velocities. From the great elevation at which these objects are luminous, it has been inferred that their light has little or no dependence on aerial action; and, indeed, the presence of the air alone could not account for the greatness of the illumination which marks their approach to the earth, but ceases when they enter the dense stratum of the atmosphere. The diameter of many luminous meteors has been estimated at two or three thousand feet; and the globe of light which they exhibited must have been several million times greater than the largest meteoric stone yet found on the earth's surface. It is supposed that these brilliant exhibitions are produced by cosmical masses several hundred yards in diameter, which, in traversing the planetary regions, occasionally sweep through the verge of our atmosphere, and, after casting a few fragments on the earth, continue their course through space. But the idea that such wandering bodies should graze our planet so often, without ever striking it directly or falling to its surface, is too extravagant to be seriously entertained. It would be far more likely that, during a naval engagement, a ship should be almost touched by several thousand balls, without being ever struck by a single one. Moreover, there is not the slightest evidence that meteorites ever perform such remarkable feats of precision, or experience so many narrow escapes from a collision with the earth, for, instead of being observed departing into space, they suddenly disappear after their encounter with the air. The small amount of solid matter which falls to the ground on these occasions is justly regarded as inadequate to evolve so vast a body of light by acting on the rarefied air at great elevations; but our globe seems to be invested with an atmosphere of ether having far more wonderful properties. Astronomical investigations prove the existence of a rare medium pervading all space; and this subtle fluid cannot be wholly insensible to chemical forces, which alone could render it useful in nature's economy. Extreme rarity would, indeed, prevent it from undergoing any chemical change in the interplanetary regions; but it is compressed to a much greater density about the vast spheres by which space is tenanted. The atmospheres of this fluid enveloping the earth and the other large planets, are not sufficiently dense for chemical action, except in cases where they receive an additional pressure from meteoric bodies sweeping through them with wonderful rapidity. The evolution of light on such occasions depends, not only on the size and velocity of the falling mass, but also on the direction in which it approaches the planetary surface; and observation shows that the most brilliant meteors move very nearly parallel to the horizon. But around the sun a much stronger attractive force gives this ethereal fluid the compression necessary for a constant chemical action, and a steady development of light; while the realms of space furnish inexhaustible supplies of the luciferous matter, and impart perpetual brilliancy to the great luminary of our system. It is not possible that the self-luminous condition of the sun could be maintained by any combustible, or light-yielding matter, of which it is composed. From a comparison of the relative intensity of solar, lunar, and artificial light, as determined by Euler and Wollaston, it appears that the rays of the sun have an illuminating power equal to that of 14,000 candles, at a distance of one foot; or of 3500,000,000,000,000,000,000 candles, at a distance of 95,000,000 miles. It follows that the amount of light which flows from the solar orb could be scarcely produced by the daily combustion of 200 globes of tallow, each equal to the earth in magnitude. A sphere of combustible matter much larger than the sun itself should be consumed every ten years in maintaining its wonderful brilliancy, and its atmosphere, if pure oxygen, would be expended before a few days in supporting so

great a conflagration. An illumination on so vast a scale could be kept up only by the inexhaustible magazine of ether disseminated through space, and ever ready to manifest its luciferous properties on large spheres, whose attraction renders it sufficiently dense for the play of chemical affinity. Accordingly, suns derive the power of shedding perpetual light, not from their chemical constitution, but from their immense mass and their superior attractive power. We thus obtain some definite knowledge respecting the stupendous magnitude of the fixed stars; and making due allowance for their density, we may confidently pronounce the smallest stellar body several thousand times greater than the globe we inhabit. This theory gives considerable support to the views which many astronomers maintain, on different grounds, in regard to the relative brilliancy of the stars; for it appears that, though the self-luminous occupants of space are not necessarily equal in size, they differ much less than we might anticipate from an acquaintance with the members of our planetary system. That the light of the sun is furnished, not by its solid or liquid matter, but by its luminous atmosphere, has been proved very conclusively from the observations with Arago's polarizing telescope. There is also evidence that this luciferous envelope is constantly replenished by supplies of ether from space. The sun's rotation assists in effecting this object by expelling the fluid from its equatorial regions, and thus creating a corresponding influx at its poles. A displacement by this means would evidently cause the solar atmosphere to advance constantly from its poles to its equator; and such a movement is indicated by the change in the position of the sun's spots, which, according to the observations of Peters for many years, are continually diminishing their heliocentric latitude. The progressive motion of the solar orb through space tends also to replenish its atmosphere with fresh material for the maintenance of its light; and the position of the large planets has some influence on the amount of ether which it receives from the celestial domain. The periodicity observed in the solar spots, and some changes exhibited by many variable stars, may be ascribed to an effect of this kind. But the result would be far more decided if a sun had large planets in its immediate vicinity; for the attraction of these bodies would alter the pressure on its ethereal atmosphere, and produce a corresponding variation in the development of its light. On this principle we may explain several phenomena connected with the variable stars; and I may remark, that Argelander regards many of their peculiarities as indicating that planets revolving around some suns affect the generation of light in their photospheres. But a planet revolving in an orbit of the smallest size possible would be productive of more remarkable consequences. Sweeping through the ethereal atmosphere of the great central sphere, it would impart a sufficient degree of pressure for luciferous action; and exhibit, on a grand scale, the evolution of light which accompanies the visits of meteoric masses to the earth. From the great brilliancy of meteors which move in a horizontal direction, it is evident that a satellite revolving around a large globe, at a small distance above its surface, should be favoured with all the conditions necessary for a sublime meteoric illumination; and it is probable that some of the bright tenants of space may shine by light originating from such a cause. Indeed, the resistance of the space-pervading medium must constantly diminish the orbits of all satellites; and, after innumerable years, bring them into such a proximity with their central bodies that such grand meteoric phenomena would be almost inevitable. If space contain dark systems (as is generally believed), the central orb which presides over each of them would become luminous, when one of its planets was passing through the final stage of existence. In a paper read at the last Meeting of the American Association for the Advancement of Science, and published in the 'Proceedings' (pp. 111–113), I have shown that the stability of satellites could no longer exist if their orbits were reduced to a certain limit; and that the attraction of the primary body would render them incapable of preserving a planetary form. In like manner, a

member of one of the dark systems of space, when brought too near its central orb, would be likewise doomed to suffer a dismemberment; and the fragments resulting from the mighty wreck would immediately scatter into separate orbits. Instead, therefore, of closing its planetary career as one vast meteor, the attendant should form a host of meteoric masses, and thus send forth far greater floods of light into space. But the fragments, gradually assuming circular orbits, would ultimately form a ring similar to that around Saturn; and as this change advanced, the light should constantly decline until it ceased when the ether partook of the motion of the fragmentary host, and became almost insensible to their pressure. It is to occurrences of this kind, which must occasionally take place in the wide domains of creation, that we may ascribe the appearance of temporary stars, and in doing so, we obtain a satisfactory explanation of the various peculiarities which they exhibit. The existence, on our own sphere, of the ether which acts so important a part in the scene of celestial wonders is indicated by certain electrical phenomena. On its presence seems to depend the evolution of light attending the passage of electricity through the vacuum of an exhausted receiver, and the light of the Aurora Borealis appears to be evolved by electric action from the ethereal fluid, which arrives at the polar regions from space. It is only by this hypothesis that we can account for the effect of a shooting star during an aurora, in lighting up certain parts of the vaults of heaven so momentarily illuminated (see Humboldt's 'Cosmos' on Aerolites). It thus appears that the subtle medium which fills space is not to be regarded as a mere impediment to planetary motion, but as a useful agent in the course of Nature's operations, and as indispensable to our existence as the appendages of air and water which roll around our planet.

'On the Discovery of the Asteroid, No. 46, on the 17th of August, 1857, by Mr. Pogson at Oxford,' by Dr. LEE.—Dr. Lee said, on the morning of the 17th of August, being in Oxford, I received from Mr. Pogson the following statement:—"I have the pleasure of sending you the reduced observations of a new planet, either Daphne, or the forty-sixth Asteroid, most probably the latter, which I found last night with your beautiful Smythian telescope. Mr. Frodsham's chronometer and Mr. Dollond's ring micrometer have done me good and unexpected service, and we are now tried trusty friends. The following were my observations, which have taken nearly all night to reduce:—

Oxford Mean Time.	h. m. s.		Apparent R. A.		South Decl.	
	h.	m.	s.	h.	m.	s.
August 16, 9 49 10	20	20	27.16	16	20	53.7"
" " 10 47 24	20	20	25.61	16	21	2.0"
" " 12 29 51	20	20	22.69	16	21	18.4"

Daily motion 39 seconds retrograde, 3° 34' south, magnitude 11½, observations duly corrected."—This discovery was made under considerable difficulties and discomforts; but the zeal and intelligence and the practised eye of the observer were able to overcome them. Mr. Pogson has been for some time engaged at his leisure hours, and after his public duties at the noble Radcliffe Observatory were terminated, in making maps of stars in the region near the ecliptic, and by a course of systematic investigation he discovered, in 1856, the planet Isis (No. 42) by these means, with the equatorial in the Radcliffe Observatory, which fact is mentioned in the Report of the Council of the Royal Astronomical Society for the year 1856, during the presidency of the distinguished astronomer, Mr. M. Johnson, F.R.S., the director of that observatory. This present planet, No. 46, was discovered by him with the aid of a similar star-map, but not in the Radcliffe Observatory, with all the conveniences and appliances which are to be found in such an establishment,—but at his private residence, and in a small garden, not larger than this room, and in the open air, and with the aid of a common lamp,—but with the assistance of Mrs. Pogson, who wrote down the chronometer times as he called them out, in order that his eye might not be troubled with turning from the eye-piece of his telescope to a paper. On the evening of the 16th of August, whilst sweeping for variable stars a stranger appeared in the

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telescope which was not in Mr. Pogson's map of stars, and it was, therefore, strictly examined, and this led to its detection; and the evening being most favourable for observation, after a series of three courses of observations, it was found to be a planet. It was situated between  $\beta$  and  $\pi$  Capricorn, in hour 20. Mr. Pogson describes the object-glass of his telescope with great admiration; and the ring micrometer, which was made expressly for it by Mr. Dollond, and the chronometer, which has been lent to him by the liberality of Mr. Frodsham, as being excellent; and it is worthy of remark, that the object-glass of the Smythian refractor, which was made for Admiral Smyth by Tulley, is only  $3\frac{1}{2}$  inches, and the object-glass of the Radcliffe equatorial is  $7\frac{1}{2}$  inches. The planet was seen again in the evening of the 22nd of August with the Radcliffe equatorial, but exceedingly faint; and on the evening of the 23rd, it was again seen with the Smythian refractor, and it appeared but a very little fainter with the latter than with the former; which fact may serve to put amateur astronomers on their guard in the purchase of object-glasses, and as evidence that the largest object-glasses are not necessarily the best.

On the Results of Measurements of  $\gamma$  Virginis for the Epoch 1857; by Admiral SMYTH; communicated by Dr. Lee.—The fine double star,  $\gamma$  Virginis, to which Admiral Smyth has for some years devoted much attention, is one of the most remarkable specimens of a binary system in the sidereal regions, the history of which is fully related both in his work, 'The Celestial Cycle' and 'The Edes Hartwellianæ.' It has been very assiduously watched by the best astrometers of the age, and its motions so clearly ascertained, as to offer sufficient phenomena to induce a conviction, that the Newtonian law of gravitation obtains in the remote stellar regions. Besides the Hartwell observations, the latest series of which are here presented, this epoch 1857 has been also watched by the Astronomer Royal, Mr. Airy, and by the Rev. W. R. Dawes, of Haddenham, and by Lord Wrottesley, at his well-conducted observatory, near Wolverhampton, and by Mr. Isaac Fletcher, of Tam Bank, Worthington. For a confirmation of the merits of Admiral Smyth, I might refer to Lord Wrottesley, to whom the public are indebted, not only for his attentions to the orbit of this star, but also for his important Catalogue of Stars, as well as for the services which he has rendered to this Association as President of the Royal Society.



The President, Dr. ROBINSON, said, that many in the Section were fully sensible of the valuable aid afforded to science by Dr. Lee, particularly by the liberal manner in which he at all times placed both the splendid instruments as well as the other treasures of Hartwell House so freely at the disposal of scientific inquirers.

On the Electro-Dynamic Induction Machine, by the Rev. Prof. CALLAN, of Maynooth College.—After stating that he had discovered the induction coil in 1836, that in 1837 he had devised an instrument for getting a rapid succession of electrical currents from the coil, and that thus he had completed the coil in 1837, as a machine by which a regular supply of electricity might be furnished, he said that he would lay before the Association the results of a long series of experiments on the induction machine. The first of these results is a means of getting a shock directly from the armature of a magnet at the moment of its demagnetization, by using, not a solid piece of iron, but a coil of very fine insulated iron for the armature of an electromagnet, between the poles of which the coil would fit. When the helix of the magnet is connected with a battery, the armature is magnetized on account of its proximity to the magnetized iron; and when the battery connexion is broken, if the ends of the insulated iron wire be held in the hands, a shock will be felt. The second result is the discovery of the fact, that if iron wires be put into a coil of covered copper wire, the ends of which are connected with a battery, and if another coil be connected with the same battery, the quantity of electricity which will flow through the latter will be greater when the first coil is filled with iron wires than when they are removed. The third result is, a core for the primary coil, which consists

of a coil of insulated iron wire, and which has five advantages over all the cores in common use. First, there is no complete circuit for any electrical current excited in any section of the core, because all the spirals of the coil are insulated from each other, and no spiral returns to itself. In the common cores, even when the wires are covered with thread, there is a complete circuit for every current induced in each section of every wire. Secondly, the currents in the various sections of the iron do not oppose each other; but the currents in each section of every wire are opposed by the currents flowing in the surrounding wires. Thirdly, in the iron coil all the currents in the various spirals flow in the same direction, and form one strong current, which may be used by connecting the ends of the coil with any body to which we wish to apply its force. But in the common cores all the currents in the sections of each wire remain within the wires, and cannot be used. Fourthly, the effect of the condenser on the currents produced in the iron core can be ascertained when an iron coil is used, but not with the common cores. By using an iron coil as a core, it is found that the condenser increases the intensity of the currents induced in the core. Fifthly, the ends of the iron coil, used as a core, may be connected with the coatings of a Leyden jar, and then the sparks from the coil are diminished in length, but increased in brightness. By the use of cores consisting of coils of insulated iron wires, electrical currents of considerable quantity and intensity may be obtained. These currents of quantity and intensity may answer for working the Atlantic telegraph, and for producing the electric light. Besides the cores just described, and the common core, Prof. Callan used three other kinds of cores: viz. a flat or elliptical bundle of wires; a core made by coiling uninsulated iron wire on an iron bar; and a core consisting partly of a bundle of iron wire, and partly of a coil of insulated iron wire. The fourth result of his experiments is a new mode of insulation, in which imperfect insulation is used when imperfect insulation is sufficient, and perfect insulation is employed where such insulation is required. The advantage of this mode of insulation is, that each spiral in the secondary coil is brought nearer to the other spirals, as well as to the primary coil and core, than it can be in the common method of insulation, without at all diminishing the efficiency of the insulation. A coil in which the secondary wire was iron, and insulated in the manner described, was shown to the Meeting, which, with a single cell, 6 inches by 4, gave sparks half an inch long without a condenser. The insulation of the large condensers made by Prof. Callan, in which the acting metallic surface of each plate exceeded 600 square feet, gave way before the coil which he exhibited was made; and, therefore, he could not say what the length of the sparks would be with the aid of a condenser. But were a condenser of the proper size to have the effect of increasing the sparks in a thirty-fold ratio, as in M. Gassiot's great coil, the length of the sparks produced by Prof. Callan's coil with a single cell should be 15 inches. The outer diameter of the coil was about 4 inches, its length 20 inches, and the length of the secondary coil about 21,000 feet. The fifth result is, a contact-breaker in which the striking parts are copper, and which acts as well as if they were platinum. The sixth result is a mere explanation of the condenser, which is confirmed by the effect of the condenser on the electrical currents produced in the core. The last result consists in the discovery of some new facts relating to the condenser, from some of which it follows, that the ordinary mode of making the condenser is defective; for condensers are generally made so that the entire surface of each of the metallic plates must act. But the condenser for every coil should be constructed in such a way that a small, or a considerable part, or the whole of the surface of each plate may be applied to the coil. For a large condenser which would make the effect of a coil excited by a single cell less than it would be without a condenser, will increase the effect of the same coil when it is connected with a battery of 10 or 12 cells.

Prof. W. B. ROOGEES gave a brief account of the

construction and effects of a very powerful induction apparatus, devised by Mr. E. S. Ritchie, of Boston, United States. In this the secondary coil is formed by winding the wire in such manner as to make a series of flat spirals, having each the thickness of a single wire, and thus building up the coil by thin transverse strata. The primary coil is covered by a gutta-percha tube, and this by a closely fitting bell glass, knobbled at the upper end, and having a widely expanded lip below. Over the whole is placed the secondary coil. By this arrangement the discharge between the core and the secondary coil is effectually prevented. Very perfect means are used for preventing any discharge within the secondary coil, between its different parts. With a secondary coil of 30,000 feet of wire, No. 34, and using one Bunsen cell, this apparatus gives a spark six inches in length. When the coil is increased to 50,000 or 60,000 feet and four cells are used, the spark is lengthened to upwards of ten inches, and has been passed continuously through an interval of  $10\frac{1}{2}$  inches. The primary coil is formed of No. 9 wire, and about eighty feet in length. The condenser, made of tinfoil separated by oiled silk, has a surface in this larger apparatus of about 30 feet. Prof. Rogers referred to the very superb phenomena produced by the passage of the current through an exhausted tube of great length and diameter, and those exhibited by the beautiful arrangement known as Gassiot's Cascade, which, with other phenomena of electrical light, were developed by this apparatus with a splendour perhaps never before equalled.

On Improvements in Grove's Battery, exhibited and described by Prof. G. J. STONEY.—He first exhibited a few cells of Grove's battery in the ordinary way in which the plates of zinc and platinum are arranged; if any accident occur to any one cell or plate it cannot be removed from the battery without taking down, cell by cell, the whole system that precedes it. Much inconvenience, also, is experienced from the fuming of the acids when the operator has finished his day's work, and in taking the plates in the ordinary manner each out of its place and dipping it into water. In the improvement which Prof. Stoney has devised, stout iron wires are bent into the form  To 1 and 2 plates of zinc are soldered, and 1<sup>st</sup> to 3 a plate of platinum, and so on with each of the rest of the elements. He had feared there would be much difficulty in soldering the platinum plate to the bend of the iron wire 3, but it was found not to be so, as upon dipping the iron into chloride of zinc and then laying the platinum plate against it, it was found that the soldering iron, with a small globule of solder, made a perfect joint along the entire extent. To prevent any chance contact of the wire 3 with 1 or 2 of the next element, a little cylinder of gutta-percha was put over each of these wires 3 which carried the platinum plate. In putting the elements of the battery together, the platinum plate 3 of each element was simply inserted between 1 and 2 of the next element, and so on throughout, and each element was then perfectly distinct from every other, and could be taken out or put in, or the cells belonging to it re-arranged as to charge of acids or otherwise, as occasion might arise, without interfering with the rest. When it is desired to stop work, the whole of these  formed wires, with the zinc and platinum plates attached to them, are lifted together out of their cells by an oblong mahogany frame, one side of which slides in a groove, so that the sides at first are at a sufficient distance to go over the entire system of  $\omega$ 's, one side of the frame is then brought under one line of the bends of the wires, and the moveable side is then pushed in so as to come under the bends on the opposite side; the entire frame is then lifted with all the plates at once, and they are all plunged together into a trough of water placed near. Thus the fuming is almost entirely avoided.

Magnetic Experiments made on board the Great Eastern Steamer, by Mr. W. RUNDALL, communicated by Admiral FITZROY,—who exhibited to the Section, and lucidly explained, tables and a diagram, showing the deviations observed in a compass placed successively at each of eight stations along the deck of the monster iron vessel now building at Millwall.

'Tables to simplify and render more general the Method of finding the Time, by observing Circumpolar Stars in the same Vertical, by Mr. C. THOMSON, communicated by Sir W. R. HAMILTON,—who described the tables, and exhibited to the Section a little apparatus constructed by his ingenious assistant, Mr. Thomson, which illustrated the method of observing circumpolar stars for this purpose.

'On a new Polarizer, resulting from a Modification of the Prism of Nicol,' by M. LÉON FOUCAULT.—When it is proposed to polarize in a complete manner a pencil of white light, the best means is to recur to the prism of Nicol; but if a pencil of a certain volume is to be acted on,—from four to five centimètres diameter, for example,—the prism of Nicol becomes expensive and difficult to realize, on account of the scarcity of the beautiful specimens of the spar of Iceland. The cut adopted for the construction of the prism of Nicol entails necessarily a great cost of material. To have the prism entire, a crystal of spar is required, whose longitudinal ridges are at least equal to three times one of the equal sides which terminate the bases. The piece is then cut from angle to obtuse angle by an inclined plane of 38 degrees on the plane of their bases, and perpendicular to that of their little diagonals. The two surfaces thus obtained are polished and glued together with balsam of Canada, when a parallelepiped thus prepared is placed on bottom uniformly lighted. On looking through the piece, a field of polarization is seen contained between two curved bands,—one red, the other blue,—which correspond with the direction of the limits according to which the ordinary and extraordinary ray is transmitted. These bands comprise an angular space of 32 degrees, which makes of the prism of Nicol an analyzer, applicable in all cases where the inclination of the ray, which it is desired to observe simultaneously, does not exceed 32 degrees. But this angular extent of the field of polarization, which is sought for in the prism of Nicol, considered as analyzer, no longer presents the same interest when the apparatus is to fill the part of simple polarizer; for then the action desired to be produced acts only, in general, on a pencil of light nearly parallel. So that there will be an advantage, in similar circumstances, in increasing the extent of the transverse dimension of the prism, even when the consequence would be a certain reduction in the extent of the angular field of polarization. Reflecting on the data of the question, I have in effect discovered, that we can modify the prism of Nicol in its cut, so as to diminish considerably the length without injury to its character of polarizer. I take then a parallelepiped of spar, whose longitudinal ridges equal only five quarters of one of the sides of the bases. An inclined section of 59 degrees on the plane of the bases, and the new surfaces being polished, I put the two pieces in their natural position without fastening them, taking care to preserve between the new surfaces a little space, where the air penetrates, and which, with the proper incidence, determines the entire reflexion of the ordinary ray. Looking through a rhomb thus prepared—in other respects mounted like a prism of Nicol—there is still discovered an angular field of polarization; but the index of refraction of air being considerably below those of the two rays propagated by the spar, complete polarization only takes place in an extent of eight degrees, and the field it presents is found comprised between two red bands. The new combination then does not fulfil the conditions necessary to the formation of a good analyzer; but when it is only required to polarize a pencil of solar light, whose extreme rays have an inclination but of half a degree, the prism, with the thin stratum of air and its eight degrees of field, more than suffices to polarize all the elements of such a pencil. This kind of polarizer is even in some respects preferable to the prism of Nicol, provided that the reflexion of the ordinary ray takes place under an incidence which sends it back almost normally to the intersection of its two lateral faces; this ray has no tendency to issue by the base and confound itself, as in the prism of Nicol, with the extraordinary ray. Also, when the material of spar is very pure, it accomplishes the extinction of the pencil produced by an analyzer in a complete manner on the whole extent of the trans-

mitted pencil. It is likely that in cases where the prism of Nicol is employed as polarizer, the new form will be preferred, since it produces an effect more complete, at the same time economizing nearly two-thirds of the mass of spar.

'On a Method for determining whether the Luminiferous Vibrations are Parallel or Perpendicular to the Plane of Polarization,' by the ABBE MOIGNO.

'On the Effect of Wind on the Intensity of Sound,' by Prof. G. G. STOKES.—The remarkable diminution in the intensity of sound, which is produced when a strong wind blows in a direction from the observer towards the source of sound, is familiar to everybody, but has not hitherto been explained, so far as the author is aware. At first sight we might be disposed to attribute it merely to the increase in the radius of the sound-wave which reaches the observer. The whole mass of air being supposed to be carried uniformly along, the time which the sound would take to reach the observer, and consequently the radius of the sound-wave, would be increased by the wind in the ratio of the velocity of sound to the sum of the velocities of sound and of the wind, and the intensity would be diminished in the inverse duplicate ratio. But the effect is much too great to be attributable to this cause. It would be a strong wind whose velocity was a twenty-fourth part of that of sound; yet even in this case the intensity would be diminished by only about a twelfth part. The first volume of the 'Annales de Chimie,' (1816), contains a paper by M. Delaroché, giving the results of some experiments made on this subject. It appeared from the experiments,—First, that at small distances the wind has hardly any perceptible effect, the sound being propagated almost equally well in a direction contrary to the wind and in the direction of the wind; secondly, that the disparity between the intensity of the sound propagated in these two directions becomes proportionally greater and greater as the distance increases; thirdly, that sound is propagated rather better in a direction perpendicular to the wind than even in the direction of the wind. The explanation offered by the author of the present communication is as follows. If we imagine the whole mass of air in the neighbourhood of the source of disturbance divided into horizontal strata, these strata do not all move with the same velocity. The lower strata are retarded by friction against the earth, and by the various obstacles they meet with; the upper by friction against the lower, and so on. Hence the velocity increases from the ground upwards, conformably with observation. This difference of velocity disturbs the spherical form of the sound-wave, tending to make it somewhat of the form of an ellipsoid, the section of which by a vertical diametral plane parallel to the direction of the wind is an ellipse meeting the ground at an obtuse angle on the side towards which the wind is blowing, and an acute angle on the opposite side. Now, sound tends to propagate itself in a direction perpendicular to the sound-wave; and if a portion of the wave is intercepted by an obstacle of large size, the space behind is left in a sort of sound-shadow, and the only sound there heard is what diverges from the general wave after passing the obstacle. Hence, near the earth, in a direction contrary to the wind, the sound continually tends to be propagated upwards, and consequently there is a continual tendency for an observer in that direction to be left in a sort of sound-shadow. Hence, at a sufficient distance, the sound ought to be very much enfeebled; but near the source of disturbance this cause has not yet had time to operate, and therefore the wind produces no sensible effect, except what arises from the augmentation in the radius of the sound-wave, and this is too small to be perceptible. In the contrary direction,—that is, in the direction towards which the wind is blowing,—the sound tends to propagate itself downwards, and to be reflected from the surface of the earth; and both the direct and reflected waves contribute to the effect perceived. The two waves assist each other so much the better as the angle between them is less, and this angle vanishes in a direction perpendicular to the wind. Hence, in the latter direction the sound ought to be propagated a little better than even in the direction of

the wind, which agrees with the experiments of M. Delaroché. Thus the effect is referred to two known causes,—the increased velocity of the air in ascending, and the diffraction of sound.

'On the Colour of Salts in Solution, each Constituent of which is Coloured,' by Dr. GLADSTONE.—It is a general law that "all the compounds of a particular base, or acid, when in aqueous solution, absorb the same rays of light"; hence it may be deduced that when a coloured base and a coloured acid combine, the resulting salt will transmit only those rays which are not absorbed by either constituent,—or, in other words, only those rays which are transmitted by both. This was proved to be actually the case by a prismatic examination of compounds of chromic, permanganic, and carbozotic acids with copper, iron, nickel, uranium, and chromium. Though the compounds of chlorine, bromine, and iodine with hydrogen and most metals are colourless, the compounds of these halogens with gold, platinum, and palladium exhibit an absorption of light due to the halogen as well as that due to the metal. The same is true in respect to chlorides, bromides, and iodides of copper, iron, nickel, and cobalt, when these salts are dissolved in a minimum of water; but when more water is added the colour changes, and the absorption due to the halogen no longer exists. In one or two of the cases examined a slight variation from the general law occurred; and ferrocyanide of iron forms a complete exception. The double chloride of platinum and copper shows the absorbent effect of all these constituents.

'On the Theory of Astronomical Observations, and on some related Questions,' by Prof. BOOLE.—The author gave a short *résumé* of Gauss's theory of the value of astronomical and other observations, and the method of least squares. He then showed that the common mode of taking means depended on a theorem, which was only one case of a much more general theorem in probabilities which he had arrived at, and which he explained in full to the Section, with the formulae, which he wrote on the board. He showed that it is only where each of the observations is equally trustworthy that our common mode of taking means can lead to correct results; and then showed that the same theorem furnished the principle for estimating the dependence to be placed on testimony and other kindred questions.

#### WEDNESDAY.

'On the Centering the Lenses of Compound Object-Glasses of Microscopes,' by Sir D. BREWSTER.—The author said, in studying the subject of diffraction, as seen through the microscope, I was led to believe that in the best object-glasses now made the axes of the individual lenses were not coincident. I have no means of learning by what process the optician centres his lenses, and groups of lenses, but it must be a very delicate one, when we consider the small size of the lenses, and the great depth of their curves; and I have no doubt that, however imperfect, it is one which is anxiously and carefully applied. You are, no doubt, acquainted with Dr. Wollaston's interesting paper 'On the Concentric Adjustment of a Triple Object-Glass,' (*Phil. Trans.*, 1822, p. 32) 45 inches in focal length, executed by the celebrated John Dollond, and regarded as one of his best works. By a process which he has described, Dr. Wollaston found that it was very imperfectly centered; and, contrary to the advice of his friends he separated the lenses, and by applying two pairs of adjusting screws to the edges of each lens, he placed their axes in the same line, and to use his own words, "he restored his object-glass to such correct performance" that it was "capable of either separating very small and nearly equal stars, as those of 44 Bootis and  $\sigma$  Coronæ, or of exhibiting the minute secondaries of  $\beta$  Orionis and 24 Aquilæ, with as much distinctness as the state of the air would admit." Dr. Wollaston adds, "that the actual limit to its powers cannot be fully ascertained, excepting under such favourable conditions of the atmosphere as do but rarely occur." If such a distinguished artist as Dollond failed in centering a group of three lenses, about 4 inches in diameter, and with comparatively flat curves, how much more difficult must it be to center the

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six minute lenses of an achromatic object-glass one-eighth or one-twelfth of an inch in focal length; and if such results were obtained by the correction of his error, how superior must the microscope be in which the concentric adjustment of its lenses is effected. While opticians, indeed, confine themselves to the use of only two kinds of glass, of different refractive and dispersive powers, we can hardly expect much improvement in the microscope, unless by the substitution of achromatic lenses in the eye-piece, and by an infallible method of centering each lens, and each group of lenses in the instrument. The successful application of two pairs of adjusting screws to each of six lenses, and also to those of the eye-piece, may be a difficult task, but it is not beyond the powers of mechanism. It is very obvious that Dr. Wollaston's method of examining the centering of a triple object-glass is wholly inapplicable to the object-glass of a microscope. In submitting to examination an object-glass made by a distinguished optician, it was necessary to use a microscopic picture of the sun, and to examine the position of its images as reflected from the various surfaces of the lenses by means of a microscope, the object-glass of which was brought in contact with the outer lens of the object-glass to be examined. By separating the two object-glasses, I observed in succession a series of twenty-four images appearing and disappearing in succession. These images occupied different parts of the field, and I could not succeed by the most careful adjustment of the apparatus employed in placing them in the same axis. These images had various sizes, and were in various states of colour, some highly coloured, and some purely white. They had also various sizes, many with fine planetary discs, of different magnitudes, some like the smallest fixed stars which it was difficult to discern, and almost all of them exhibiting the most beautiful concentric diffracted rings when put out of focus. Two or three images often appeared in the same part of the field, in immediate succession, while similar pairs arose at a distance from each other. Although I often succeeded in uniting two or more of these images, yet the effect of this was to place others at a greater distance; and I had no hesitation in coming to the conclusion, that the lenses of the object-glass which produced these images were imperfectly centered. Having had occasion to see at the Paris Exposition, and more recently at Florence, the superior performance of Prof. Amici's microscopes, I cannot omit the present opportunity of urging philosophers and opticians, as I have often done, to correct the colours of the secondary spectrum by fluids or solids of different dispersive powers. Prof. Amici has done this. In his object-glasses, Nos. 1 and 2, of low powers, he employs four different refractive and dispersive substances. In his powers Nos. 3, 4 and 5 he employs five such substances; and in his highest power, No. 6, he employs six. In recommending, as I have often had occasion to do, the employment of diamond and other gems in the construction of compound as well as simple microscopes, I have been met with the objection that they are too expensive for such a purpose, and they certainly are for instruments intended merely to instruct and amuse; but if we desire to make great discoveries, to unfold secrets yet hid in the cells of plants and animals, we must not grudge even a diamond to reveal them. If Mr. Cooper and Sir James South have given a couple of thousand pounds for a refracting telescope, in order to study what have been mis-called "dots" and "lumps" of light on the sky; and if Lord Rosse has expended far greater sums on a reflecting telescope for analyzing what has been called "sparks of mud and vapour" encumbering the azure purity of the heavens, why should not other philosophers open their purse, if they have one, and other noblemen sacrifice some of their household jewels to resolve the microscopic structures of our own real world;—to unravel mysteries most interesting to Man; and disclose secrets which the Almighty must have intended that we should know.

On the Effects of Heat on the Colour of Dissolved Salts, by Dr. GLADSTONE.—If a coloured salt be dissolved in water, heating the solution does not usually affect the colour of it. In not a

few cases, however, the colour is rendered more intense, and altered somewhat in its character. Among the examples mentioned were ferridcyanide of potassium, meconate of iron, chloride and bromide of palladium. In other cases, heating the solution produces apparently a total change of colour: for instance, chloride of copper passes when heated from blue to green; chloride of nickel from a bluish to a yellowish green; sulphocyanide of cobalt, or chloride of cobalt dissolved in aqueous alcohol, from a pale red to a deep bluish purple. In all these instances heat causes the absorption of a larger quantity of rays by the solution; but this appears to depend sometimes upon some purely physical cause, at other times upon some chemical change. With ferridcyanide of potassium, and similar salts, a certain thickness of the heated solution produces precisely the same effect on the spectrum as an increased thickness of the same solution when cold. With chloride of copper, and similar salts, the somewhat dilute solution when heated produces the same effect on the spectrum as the same solution when concentrated and cold,—these salts being all of that character which is altered in colour by the addition of water.

On certain Additions to the Integral Calculus, by Prof. BOOLE.

On the Algebraic Couple and the Equivalents of Indeterminate Expressions, by Mr. C. J. HARGRAVE, Commissioner in the Encumbered Estates Court.

On Infinite Angles and on the Principle of Mean Values, by Mr. Commissioner HARGRAVE.

These three communications were received with much interest by the mathematicians of the Section, but were of too abstruse a character to warrant us in inserting a report of them.

On the Variation in the Quantity of Rain due to the Moon's Position in reference to the Plane of the Earth's Orbit, by Mr. C. FULBROOK.—The author called attention to an important difference in the amount of rain which falls in these latitudes at opposite parts of the moon's course with reference to the plane of the earth's orbit:—a result obtained by placing horizontally (from the daily register of Howard, in the vicinity of London) the amount of rain (when any) due to each day throughout a lunar course,—and so on for 100 courses in due order. The following table exhibits the result:—

Position of the Moon with reference to the Plane of the Earth's Orbit in its connexion with the Rain-fall of London and its vicinity, as deduced from a Register of the Weather during 100 courses of that Luminary.

Position of the Moon.	Days.	Amount of Rain.
In greatest South Latitude.	1	47.60 in. in 500 days.
	2	
	3	
	4	
	5	
Ascending through the Plane of Earth's Orbit	6	26.42 in. in 500 days.
	7	
	8	
	9	
	10	
In North Latitude.	11	
	12	
	13	
	14	
	15	
Descending through the Plane of Earth's Orbit	16	
	17	
	18	
	19	
	20	
In South Latitude.	21	
	22	
	23	
	24	
	25	
	26	
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This effect the author supposes to be due to alternate, southerly and northerly currents depending on the ascent and descent of the moon through the plane of the earth's orbit. Be this as it may, it is reasonable to infer that when she is thus in some way producing an excess of rain in these latitudes, comparatively dry weather obtains in corresponding southern latitudes, and vice versa; and that intermediate latitudes experience an intermediate degree of the effect. Meteorologists of other latitudes and

distant countries, who may possess a register of the weather extending over one hundred courses, or about seven years and a half, should try the result for their respective latitudes, and transmit their conclusions to the author.

On the Icosian Calculus, by Sir W. R. HAMILTON.—The learned author stated that this calculus was entirely distinct from that of quaternions, and in it none of the roots concerned were imaginary. He then explained the leading features of the new calculus, and exemplified its use by an amusing game, which he called the Icosian, and which he had been led to invent by it,—a lithograph of which he distributed through the Section, and examples of what the game proposed to be accomplished were lithographed in the margin, the solutions being shown to be exemplifications of the calculus. The figure was the projection on a plane of the regular pentagonal dodecahedron, and at each of the angles were holes for receiving the ivory pins with which the game was played.

On the Origin and Elimination of Euclid's "Reductio ad absurdum," by Prof. J. P. HENNESSY.

On a Proposal for the Establishment of an Uniform Reckoning of Time in connexion with the "Telegraph," by Mr. J. J. MURPHY.—The author said, that as in Britain the establishment of the telegraph had made it necessary to adopt Greenwich mean time all over the country, where the difference was small this was possible, but when the telegraph extended to America, or greater distances, it would cease to be so. He proposed that all watches should be furnished with two hands, one to show some standard time—say that of Greenwich,—the other the local time of the place of the owner of the watch.

The ABBÉ MORINO said this plan was already in use in France.—Dr. ROBINSON said he had frequently seen such watches, but national jealousy would render the plan impracticable, as all nations could not be induced to adopt as a standard the time of any one.

On certain Planetary Perturbations, and on a New Perturbation of Encke's Comet, by the Rev. W. E. PENNY.—It appears that there are in the motions of several of the planets inequalities arising from the product of the disturbing forces of two planets, which inequalities appear not to have been noticed hitherto, unless very lately, but which seem to be much larger than might have been expected, owing to the length of time during which they are accumulating. The most remarkable is one which exists in the motions of Mars and the Earth. Its period is about 1,800 years, or about twice that of the long inequality of Jupiter and Saturn. In the case of the Earth it appears to amount to about 71 seconds, and is owing to the product of the disturbing forces of Jupiter and Mars, and in the case of Mars it seems to amount to about 45 seconds, and is owing to the product of the disturbing forces of Jupiter and the Earth. It arises from the fact, that 4 times the mean motion of the Earth is very nearly equal to 8 times that of Mars minus 3 times that of Jupiter. Its value for the Earth is represented by the following equation:  $-2\theta = 7.293 \sin (8n_3 t - 4n_2 t - 3n_1 t + 8\epsilon_3 - 4\epsilon_2 - 3\epsilon_1 + 75^\circ.14')$ ; and for Mars by the equation:  $-2\theta = -45.684 \sin (8n_3 t - 4n_2 t - 3n_1 t + 8\epsilon_3 - 4\epsilon_2 - 3\epsilon_1 + 73^\circ.34')$ ; where  $n_1, n_2, n_3$  are the mean motions of the Earth, Mars, and Jupiter. This inequality is remarkable as being, if the work is correct, larger, and in the case of Mars very considerably so, than any which arise from the simple perturbation of a single planet,—the largest hitherto known in the case of the Earth amounting to only 7.15", and in the case of Mars to 25.5". Also, there will be a corresponding inequality in the motion of the Moon, which I have not yet examined, but which may, perhaps, be sensible; for, according to the investigations of M. Hansen, the inequality in the motion of the Earth discovered by Prof. Airy, amounting to 2.04", with a period of 240 years, produces one of not less than 23" in the motion of the Moon,—so that, judging by analogy, there ought to be a sensible inequality in the present case also. Again, there seems to be an inequality in the motions of



Jupiter, Saturn, and Uranus, with a period of somewhat more than 1,700 years, and amounting in the case of Jupiter to about 10°; and in the case of Saturn to about 40°, and in that of Uranus to 43°. It arises from the fact, that 6 times the mean motion of Saturn is nearly equal to twice that of Jupiter plus 3 times that of Uranus. There are several others besides these of less importance, arising from the product of two disturbing forces; and there is even one which results from the product of three forces, and appears to amount to nearly 7°. There are also several inequalities of the same kind in some of the asteroids, which are very much larger than any in the motions of the principal planets; but as the theory of the asteroids is considered to be of comparatively little interest, I have not sent them. But the most remarkable inequality of all of this kind is one which exists in the motion of the comet of Encke, and which is due to the product of the disturbing forces of Jupiter and Saturn. The mean motion of this comet is very nearly equal to 4 times that of Jupiter minus that of Saturn, or,

in other words,  $\frac{n-4n_1+n_2}{n}$  is a very small quantity,—so that there will be a considerable inequality of the form  $P \sin (nt - 4n_1t + n_2t + \theta)$ , and also another of the form  $P' \sin (2nt - 8n_1t + 2n_2t + \theta)$ . This latter term, I find, appears to account for at least a very considerable part of the remarkable acceleration which has been observed in the mean motion of this comet; but owing to peculiar difficulties which beset the question, I am not able to say whether it accounts for the whole of it or not. There will also be a remarkable inequality, arising from a similar cause, in the motions of all the comets of short period whose elements are given by Sir J. Herschel in his 'Outlines of Astronomy.'

'Fourth Report on Earthquakes,' by Mr. R. Mallet.—The author described the new seismometer and detailed to the Section some of the results obtained when large quantities of gunpowder were exploded in quarries in Wales. The Report in full was laid before the Geological Section, and will be found in their proceedings.

'On the Grand Currents of Atmospheric Circulation,' by Mr. J. THOMSON.—In this paper Mr. Thomson brought under the notice of the Section a theory of the grand currents of atmospheric circulation, which had occurred to him. As this theory is intended to form the subject of a paper soon to be submitted to the Royal Society, a brief exposition of Mr. Thomson's views, and of the chief point of novelty of his theory, will suffice for publication at present. It has been ascertained as a matter of observation, that in latitudes extending from about 30° to the poles, the winds, while prevailing from west to east, prevail also in directions from the equator towards the poles. Now this motion towards the poles appears not to have been hitherto satisfactorily explained. In fact, it is the contrary motion to what is naturally to be expected when the theory of Halley, which was given about the year 1686, and which appears to afford the true key to the explanation of the trade winds, is followed up with respect to the circulation of the air in other latitudes than those in which the trade winds occur. According to this theory so applied, it would naturally be expected that the air, having risen to the upper regions of the atmosphere in a hot zone at the equator, should float towards the north and south polar regions in two grand upper currents, retaining, as they pass to higher latitudes, some remains, not abstracted by friction and admixture with the currents below, of the rapid equatorial motion of about 1,000 miles per hour from west to east, which they had in moving with the earth's surface at the equator. Also, it would be expected that the air in the polar regions should have a prevailing tendency to sink towards the surface of the earth, in consequence of its increased density caused by cold; and that it should tend to flow from the polar regions along the surface of the earth, towards the equator, with a prevailing motion from west to east in advance of the earth, until, by friction and impulses on the earth's surface, the motion in advance of the earth, brought from above by the air in its descent, and communicated further to it by friction and admixture from

above, as it passes to lower latitudes than its places of descent, is exhausted; or, in other words, until it reaches the latitude in which the trade winds commence to blow from the east, and until it has communicated, in blowing from west to east on the earth's surface, a torsional force to the earth, just sufficient to balance the opposite torsional force communicated to the earth by the trade winds blowing from east to west. Now this theory, obvious as it appears in the form just adduced, is found in one essential point to be controverted by observations. This point is what was stated in the outset of the present article, namely, that the prevailing winds on the surface of the earth in latitudes higher than 30°, are, while blowing from the west, as should be expected, found to blow more towards the poles than from the poles; and thus do not move as if impelled along the surface of the earth from polar to equatorial regions by an augmented pressure due to condensation by cold in polar regions, and a diminished pressure due to rarefaction in the equatorial regions. Observations being thus at variance with the only obvious theory proposed, the circumstance in question has been commonly regarded as rather paradoxical: and Lieut. Maury, one of the most recent writers on the subject, has, in his much-valued treatise on the Physical Geography of the Sea, found himself forced into supposing an entire reversal in latitudes above 30°, of the great circulation just described. Mr. Thomson regards Lieut. Maury's supposition as being entirely unsupported by the known physical causes of the atmospheric motions. He, on the contrary, maintains that the great circulation already described does actually occur, but occurs subject to this modification, that a thin stratum of air on the surface of the earth in the latitudes higher than 30°—a stratum in which the inhabitants of those latitudes have their existence, and of which the movements constitute the observed winds of those latitudes—being, by friction and impulses on the surface of the earth, retarded with reference to the rapid whirl or vortex motion from west to east of the great mass of air above it, tends to flow towards the pole, and actually does so flow, to supply the partial void in the central parts of that vortex, due to the centrifugal force of its revolution. Thus it appears that, in temperate latitudes, there are three currents at different heights:—that the uppermost moves towards the pole, and is part of a grand primary circulation between equatorial and polar regions;—that the lowermost moves also towards the pole, but is only a thin stratum forming part of a secondary circulation;—that the middle current moves from the pole, and constitutes the return current for both the preceding;—and that all these three currents have a prevailing motion from west to east in advance of the earth. This is the substance of Mr. Thomson's theory; and he gives, as an illustration, the following simple experiment:—If a shallow circular vessel with flat bottom, be filled to a moderate depth with water, and if a few small objects, very little heavier than water, and suitable for indicating to the eye the motions of the water in the bottom,\* be put in, and if the water be set to revolve by being stirred round, then, on the process of stirring being terminated, and the water being left to itself, the small particles in the bottom will be seen to collect in the centre. They are evidently carried there by a current determined towards the centre along the bottom in consequence of the centrifugal force of the lowest stratum of the water being diminished in reference to the strata above through a diminution of velocity of rotation in the lowest stratum by friction on the bottom. The particles being heavier than the water, must, in respect of their density, have more centrifugal force than the water immediately in contact with them; and must, therefore, in this respect have a tendency to fly outwards from the centre, but the flow of water towards the centre overcomes this tendency and carries them inwards; and thus is the flow of water towards the centre in the stratum in contact with the bottom palpably manifested.

'On Improvements in the Optical Details of Reflecting Telescopes and Equatorial Instruments,'

\* A few tea-leaves taken from a teapot will suit the purpose well.

by Mr. T. GRUBB.—The author stated that, while the Earl of Rosse, by his achievements, had placed beyond doubt the practicability of producing specula for reflecting telescopes at once as perfect as could be desired, and as large as could be made practically useful, the achromatic object-glass had received but little increment of size; and though the Messrs. Chance, of Birmingham, had produced a pair of discs, of optical glass, of 29 inches diameter, yet these had been allowed to be transferred to another country, where the work of forming them into an object-glass was still to be effected. Four years had now elapsed since the production of these discs, and the refracting telescope may now be considered as being completely distanced in size by its competitor, the reflector. Under such circumstances, it was important, he conceived, to give to the reflecting telescope every possible accession of improvement which the progress of art or science placed from time to time at our disposal. The two points of admitted inferiority of the reflector being, a greater liability to tarnish than glass, and less intrinsic brilliancy of the reflected pencil of light. The author had succeeded (so far as the small speculum of the reflecting telescope is concerned) in entirely obviating the former objection and of very much lessening the other. Regardless of the failure of an attempt, made years since, to construct a reflecting telescope of glass surfaces quicksilvered, he concluded, from his own experience, that such surfaces could be made equally perfect with those of speculum metal; while by silvering (not quicksilvering) that surface required to reflect, a great increase of light would result,—thus producing for the small reflector of the telescope a mirror as imperishable as glass, and in reflecting power, approaching the transmitting power of a lens. The author explained why, instead of using this reflector in its simplest form—viz., that of a lens of equal thickness silvered on one side—he preferred an achromatized compound of two lenses, cemented and silvered, and exhibited such a compound, which, he stated, had, on trial, performed perfectly. He next proceeded to describe in detail his proposed application of the same principles to both small and large specula of telescopes (where such were of moderate dimensions), as also an improved form of the prism of total reflexion applicable to Newtonian telescopes of the largest dimensions. This latter is a prism of divergent or concave power made applanatic, or at least achromatized, reducing the convergence of the rays coming from the large speculum, and also the size required for the prism in the same arbitrary proportion (two or three times being suggested); the required magnifying power being obtained by a proportionally lower eye-piece. The author next proceeded to discuss the respective merits of the several varieties of equatorial mounting as applicable to large telescopes. The first variety, or long polar axis (bi-forked or not), he rejects, from its necessarily great length and consequent unsteadiness. The second, or large-cone polar axis, supporting the telescope in a bi-furcation prolonged beyond the upper bearing, he would also reject, from the enormous weight of such in proportion to the telescope carried,—4 tons being stated as the moving mass in the case of a telescope of only 8 inches diameter. The third, or German variety of construction, the author considers, in its general type, as preferable to all others; and he has, therefore, devoted much attention to its improvement. By a system of internal counterpoise, he has reduced the direction of the pressure of the declination axis (with its appendages, including the telescope and its counterpoise) to that of the centre of revolution of the polar axis, removed all end pressure of the declination axis, and supported all but a small fraction of these weights by anti-friction rollers. In this arrangement great steadiness is retained and freedom of motion attained. An instrument combining these principles and carrying a 12-inch achromatic of 20 feet focus has but about 12 cwt. of material (including the telescope) to be moved; and this is effected by a force of about 1 lb. applied at the eye end. This instrument, contrasted with the 8-inch before mentioned, is (allowing for the difference in size) lighter in the proportion of about hundredweights to tons.

The author in conclusion, and aided by drawings, explained the general construction of an instrument of the German type which he had devised purposely for the proposed great southern telescope, and which construction had been selected by the Committee appointed by the British Association in reference to same. In this instrument a Cassagne telescope of the proposed diameter (viz., 4 feet), and the other moving portions of the instrument, are calculated at 19,000 lb., moved by a force of 20 lb., applied at a radius of 5 feet. The other proposed construction, which was that of the prolonged polar axis, being estimated at 45,000 lb. moving weight, and requiring 750 lb., or 37½ times that of the author's construction for its movement.

'Outline of a Theory of the Structure and Magnetic Phenomena of the Globe,' by Mr. J. DRUMMOND.—The author, from the admitted fact of our earth having cooled down from an original state of fluidity, and that it now is a solid crust inclosing a fluid mass of molten materials, held that there must be an action of the sun and moon on this fluid mass analogous to that which caused the tides of the ocean; that from thence an outward pressure on the crust must result, propagated along it, in a manner similar to the great tidal wave; and from this principle, in an elaborate essay, he deduced the ordinary magnetic phenomena, as well as volcanoes, earthquakes, and other violent actions; concluding by answering objections which may be urged against the foundation and details of this theory.

#### SECTION B.—CHEMICAL SCIENCE.

'On a Process for the Determination of the Nitrates of Plants,' by Prof. W. K. SULLIVAN.—He pointed out the great importance of finding a process for the purpose, because in determining the amount of nitrogen in plants by the usual processes, a part of the nitrogen of the nitric acid is consumed in the result, and consequently the true amount of assimilative azotic principles cannot be deduced from ultimate analysis, if nitrates be present. The chief feature of the process is the use of sulphovinate of silver to precipitate the vegetable acids; the silver salts of which are insoluble in absolute alcohol, while the nitrate of silver is soluble. He also pointed out a method of separating lactic and acetic acids from one another when present.

'Suggestions towards a more Systematic Nomenclature for Organic Bodies,' by Mr. G. C. FOSTER.

'On the Effects of Alum in Panification,' by Dr. ODLING.

'On the Choice of Annual compared with Perennial Fertilizers,' by Sir J. MURRAY.

'On Illuminating Peat Gas,' by Mr. R. L. JOHNSON.—He stated that it is now nearly half a century since a Parliamentary Committee appointed by Government to report on Irish peat named the town of Sligo and the Hill of Howth as the extreme points of a straight line, and Galway and Wicklow Head as the extreme points of another straight line, between which two straight lines lay the six-sevenths of all the peat in Ireland, the remaining one-seventh being distributed throughout localities on either side of these lines. Having named the different localities where peat is distributed, the total numbers of which in acres appears to be three millions, Mr. Johnson entered into a detailed description of the mode by which he obtained illuminating gas from common peat or turf, which he produced by the double decomposition of the constituents of the peat. He stated that works for the production of the gas have been recently erected and are in actual operation in two places in Ireland. The gas produced was good, and its cost, as stated to him by a gentleman who was using it, less than 2s. the thousand cubic feet. He stated that from one single pound weight of common peat an hour's light may be produced, and that its cost being so very small it should ultimately be extensively used throughout Ireland, and in its production there was one-third of charcoal.

'On Coloured Confectionery,' by Dr. M'NAMARA.—The author drew the attention of the Section to the large quantity of highly poisonous colouring matters employed in the manufacture of confectionery. He referred to cases of deaths resulting from this practice. He alluded to the manner in

which these substances are coloured by vegetable colouring materials of a harmless nature, and suggested that a list of such colours should be compiled by parties competent to the task, from which alone confectioners should be permitted to select their colours. He gave a sketch of such a list, and exhibited some beautifully coloured confectionery, in which such colouring matter had been detected. These confections he had for some time in his possession, and their colours did not appear to have faded. In conclusion, he cautioned the public against buying any confectionery in which green or blue colours exist, as such colours are probably produced by poisonous agencies.

The PRESIDENT said that, in his opinion, the subject of the foregoing paper was a most important one, and that suggestions such as these, as to the employment of innocent colours, were far more valuable than positive prohibitions against the use of poisonous colouring matters, as more likely to promote the object in view, the protection of the public health.

'On the Specific Gravity of Chloride of Nitrogen, with some Remarks upon its Action on Alcohol,' by Mr. ALPHONSE GAGES.—He gave determinations which were extremely close to those given many years ago by Sir Humphry Davy. He also mentioned the fact that chloride of nitrogen dissolves in absolute alcohol without decomposition, but if the solution be allowed to stand for a few hours it decomposes. He described an apparatus for introducing the chloride of nitrogen into the alcohol, and mentioned the character of the reaction which took place.

'On some of the Properties of Carbonized Peat Moss, in its Uses Chemically and Medicinally,' by Mr. J. W. ROGERS.

'On Urea as a Direct Source of Nitrogen in Vegetation,' by Prof. CAMERON.—He showed that nitrogen was as available as food for plants, when a constituent for urea, as in its ammoniacal combination; or, in other words, that urea, without being converted into ammonia, may be taken up into the organisms of plants, and there supply the necessary quantity of nitrogen. He described the experiments which led him to this conclusion, which were very elaborate, and were made on barley plants in confined spaces supplied with air freed from ammonia. The following conclusions were deducible from the results of his experiments, viz.:—1. That the perfect development of barley can take place, under certain conditions, in soil and air destitute of ammonia and its compounds. 2. That urea in solution is capable of being taken unchanged into the organisms of plants. 3. That urea need not be converted into ammonia before its nitrogen becomes available for the purposes of vegetation. 4. That the fertilizing effects of urea are little if at all inferior to the salts of ammonia. 5. That there exists no necessity for allowing drainings or other fertilizing substances containing urea to ferment; but that, on the contrary, greater benefits must be derived from their application in the recent or unf fermented condition.

'On the Chemical Properties of the Potato, and its Uses as a General Article of Commerce if properly manipulated,' by Mr. J. W. ROGERS.—The object of the paper was to show that the matter of the potato was in reality equal in nutritive value to the dry matter of wheat, whilst the quantum of food produced from a given quantity of land was nearly four times that produced from wheat. He exhibited some interesting specimens of the production of the potato in meal, flour, &c., and gave the following results of analysis:—

	Starch.	Gluten.	Oil.
Components of the potato per cwt.	84.077	14.818	1.104
Do of wheat	78.199	17.536	4.265

And gave the following important fact as to the quantum of food from an acre of land:—

	Starch.	Gluten.	Oil.
Dry matter of potato . . . . .	3,427lb.	604lb.	45lb.
Dry matter of wheat . . . . .	825	185	45

'On the Composition of the Iron Ores of the Leitrin Coal Field, with some Remarks on the Advantages of that District for the Manufacture of Iron,' by Mr. P. BUCHAN.

'On the Purification of Large Towns by Means of Dry Cloacæ,' by Dr. LLOYD.

#### TUESDAY.

#### SECTION D.—ZOOLOGY AND BOTANY, INCLUDING PHYSIOLOGY.

The Rev. J. YATES exhibited a specimen of a cone from the green sand, resembling externally certain forms of Cycads, but which from the position of the seeds, he thought must be referred to the Coniferae. He also exhibited a specimen of the stem of a fossil Cycad, which bore a close resemblance to the fruits of the Cycadaceæ.—Prof. PHILLIPS pointed out the difficulties which existed in determining the fossil remains of fruits and stems of Cycads and Conifers. He believed that Mr. Yates was quite right in the characterization of the fossils now exhibited.

Dr. DAUBENY read a paper 'On Vegetable Teratology,' from Mr. F. Maxwell Masters.—The paper was illustrated with sketches of the Teratological forms described. The author expressed his determination to pursue this subject, and requested specimens to be sent to him.

Dr. STEELE read a paper, from Prof. Buckman, 'On the Specific Characters of *Cnicus tuberosus*,'—He regarded this thistle as a hybrid between *Cnicus aculeatus* and *Cnicus acanthoides*.—Mr. BABINGTON stated, that Prof. Buckman had come to the same conclusion that many Continental botanists had come to. *C. Forsteri* was also regarded as a hybrid. After a careful examination of plants for many years, he had arrived at the conclusion, that hybrids among wild plants were very rare, and so seldom established as to give little trouble to the botanist.

'On the Forms of Diatomaceæ found in the Chalk,' by the Rev. E. O'MEARA.—The author gave the result of his own examination of some chalk, in which he had discovered forty-two well-known species. Four were freshwater, seven brackish water, and thirty-one marine.

Mr. E. BIRCHALL made some remarks on a list of additions to Irish Lepidoptera.—In the list of Lepidoptera drawn up by the Rev. J. Green there are 415 species recorded as Irish, whilst 803 are found in Great Britain. I have paid some attention to this order of insects during the present summer, and have much pleasure in exhibiting specimens of twenty-five species captured in Ireland, and not included in Mr. Green's list. They may be thus summed up:—two Papilionidæ; one Sphinx; five Bombycines; seven Noctuidæ; five Pyralidæ; five Geometridæ. There can be no doubt that the great discrepancy which still exists between the British and Irish lists of Lepidoptera would be much further reduced, even if a few districts of Ireland were fully worked by resident collectors—to collect successfully, local knowledge is essential, and the hurried visit of a stranger to any district generally results in disappointment. The West of Ireland, in particular, where many districts remain to the present time in much the same state as they have been for centuries, presents a wide field for research, and affords strongholds to species of great interest to the naturalist, probably to some altogether new. I may mention that ten of the species now exhibited were captured in the county of Galway. The recent discovery of *Anthracoceros Minos* in the locality referred to is an earnest of what we may expect when the West of Ireland is thoroughly explored—this conspicuous insect occurs in great profusion, yet shows no disposition to wander beyond an extremely restricted locality, where it has doubtless flourished for ages. The following is a list of the new species:—*Polyommatus Ægon*—not uncommon near Galway in July. *Erebia Cassiope*—several specimens captured in July at considerable elevations on the sides of the hills between Clifden and Westport. *Trochilium tipuliforme*—gardens, Dublin. *Setina Irorella*—plentiful near Galway. *Liparis auriflua*—Howth. *Famen nitidella*—Howth, July 1. *Clostera curtula*—Tullamore. *Endromis versicolor*—Powerscourt. I give this insect with some doubt, having failed to rear a larva which I believe to have been of this fine species. It was beaten from a birch-tree at Powerscourt. *Acronycta arvensis*—Malahide. *Zyclophasia subultraria*—at Sugar, near Galway, in profusion. *Miana exposita*—near Galway, in plenty. The only previously recorded locality was Darlington, where the insect was discovered



in 1855. *Agrotis aquilina*—Sugar, Killarney. *Tentacampa gracilis*—Salmons, Killarney. *Dasy-campa rubiginosa*—Irry, Dublin. *Aplecta nebulosa*—Sugar, Galway. *Asopia lamella*—Galway. *Botys fuscolis*—Galway. *Botys pumilio*—Galway. *Hypena crassalis*—Carrick-upon-Suir (Dr. Crite). *Nola excrucialis*—Powerscourt. *Aspitates Citraria*—Powerscourt. *Emmelesia encirata*—Bray. *Cabera strigillaria*—Powerscourt. *Macaria lituraria*—Powerscourt. *Eupithecia exaltidaria*—Powerscourt. Mr. BARINGTON remarked on the great activity displayed in the last few years by Irish naturalists. Twenty years ago a French writer had said that the Fauna and Flora of Ireland were less known than any district of the same extent in Europe. But now, through the labours of William Thompson, Robert Ball, Mackay, Patterson, and the young Dublin naturalists, no part of Europe had had its Flora and Fauna more completely made out.

Mr. E. P. WRIGHT stated, that he had intended reading a paper 'On the Distribution of Molluscan Types in the Vicinity of Dublin.' He had, however, been requested to draw up a report on the Mollusca of Dublin Bay, which would embrace this subject; and he would, therefore, defer his observations till the next Meeting of the Association at Leeds.

Mr. R. DOWDEN read a paper containing a brief suggestion, recommending a more complete compilation of the facts illustrating the Physiology of Vegetable and Animal Secretions.

Dr. LANKESTER laid on the table a number of the Tables issued by the Committee for the Registration of Periodic Phenomena. These Tables were filled up, but he complained that every year persons took the tables, promising to fill them in, but failed to send them to the Committee.

Mr. NIVEN read a paper on practical horticulture, entitled, 'On the Importance of a thorough Understanding of the Root Principle in the Cultivation of Trees.' The paper was illustrated by apple-trees, pear-trees, and fine fruit.

#### SECTION E.—GEOGRAPHY AND ETHNOLOGY.

The Rev. Dr. Todd presided.

Mr. W. OGBAY, F.L.S., read a paper 'On the Dispersion of particular kinds of Domestic Animals as connected with the great Ethnological Divisions of Mankind.'

'On the possible Migrations and Variations of the Earlier Families of the Human Race,' by Admiral FITZROY.

'On some Measurements of different Races in India and the High Asia,' by Herr H. SCHLAGINTWEIT.

'On the Influence which Physical Characteristics exert upon the Language and Mythology of a People as a means of tracing the Affinities of Races,' by Prof. W. R. SULLIVAN.

'On the Routes of Communication between England and India,' by Major-Gen. CHESNEY.—I should like to point out to you the various existing and proposed lines of route to India, in order that you may have clearly before your mind what it is that I am anxious to accomplish by this Euphrates route, of which you have so often heard. You all know our long sea line to India round the Cape. The red line on the map shows you the existing line by the Red Sea and Aden to Kurrachee and Calcutta. The yellow line shows the routes proposed by Sir Rowland Macdonald Stephenson, and the one apparently preferred by Lord Palmerston. It passes over the Balkan, the Taurus, and other mountain ranges, quite regardless of engineering difficulties. And the blue line is that which it has been proposed to carry out. You will at once perceive that, if a direct line be drawn along the globe from London to Bombay or Kurrachee, it exactly takes in the route by the Valley of the Euphrates; consequently this portion of the line has necessarily formed a part of all the various projects that have been advanced with a view to facilitating and shortening our communication with India, with one exception; brought to my notice in a paper read last year at Cheltenham, which is supposed to go from Acre across the Desert to Busso-rah. The distances by the two overland routes are as follows:—

	English miles.
From London to the entrance of the Red Sea	4,372½
From the entrance of the Red Sea to Kurrachee, which will to doubt become the great port of India in place of Bombay	1,705
Total	6,077½

London to the entrance of the Persian Gulf	4,271
From the entrance of the Persian Gulf to Kurrachee	702
Total	4,973

The difference in favour of the Euphrates Valley being 1,104½ miles. The great gain, therefore, is from the entrance of the Red Sea and Persian Gulf onwards. From the Red Sea to Kurrachee we have 1,705 English miles; whilst we have only 702 from the head of the Persian Gulf to the same port, or less than one-half. In the one case we have the monsoon right ahead towards Aden; and in the other it is nearly abeam to Ormuz. I need scarcely add, a difficult and dangerous navigation in the one case, and a perfectly safe one in the other. It was this great difference in the open sea distance of the two lines which made so great an impression on his late Majesty. When looking at the map, he at once said, "I am a sailor, and can appreciate this great advantage;" and up to his lamented death he warmly supported the Euphrates route. The completion of the proposed arrangements would enable us to get over this distance, and carry mails and passengers from London to Kurrachee, in thirteen days and a half, or less than half the time at present occupied in the transit by the Red Sea; while by laying down an electric telegraph line by this route, we may, in eighteen or twenty hours, be assured of the welfare of some friend or relative in a distant part of India, whose fate is now a matter of uncertainty and anxiety. I should just point out to you also that the proposed railway will form a chain of communication with those lines up the Valley of the Indus, &c., now in progress of completion in India, and will thus give us as direct a route as can be had between London and Lahore. From the period of Julian, A.D. 363, we have no record of any great military expedition in connexion with Western Asia until Napoleon conceived the idea, in 1809, of transporting a force down the Euphrates with a view to the invasion of India. All his calculations and arrangements were made for this end. His troops were to have been transported on rafts, constructed of timber cut down in the vicinity and on the banks of the river and sea coast. With a little of his daring we might do the same at this moment, and with much greater facility. The garrisons in the Mediterranean might readily spare 7,400—viz., 3,000 out of the 6,500 at Malta; 2,000 from the 4,000 at Corfu; and 2,400 might be detached from the 5,400 men stationed at Gibraltar. 2,400 might go through Egypt, and 5,000 could be carried in a few days by Admiral Lyons's fleet to the mouth of the Orontes. They would then have before them a march of 110 miles, with ample means of transport, to the river. pontoons, native rafts, and boats would carry the force down to the Persian Gulf in less than fifteen days. There native vessels could be found to transport them to Kurrachee by a safe and rapid navigation at this season. There have been various proposals at different times for opening communication with India by the Euphrates Valley. That which took the most practical shape was elaborated by Lieut. Campbell, then of the Royal Engineers, in 1843. His proposal and map were in all essential points identical with those more recently proposed by the great engineer, Sir R. Macdonald Stephenson. These and many other subsequent proposals, both French and English, have all now become merged in the company of which Mr. Andrews is chairman, and Sir John Macneill, a man well known among you, engineer-in-chief. I was strongly pressed last year to join in the promotion of my favourite object of nearly a quarter of a century, and urged to proceed to Constantinople to obtain the necessary firman from the Sultan to make all preliminary arrangements. Feeling that with the prospect of a railway a more careful examination of the country to be traversed was desirable, I was accompanied by Sir John Macneill, civil engineer, and two assistant engineers. We reached Constantinople by the route

of the Danube, opened negotiations, and made all preliminary arrangements with the Turkish Government, and then proceeded to Syria in H.M.S. Stromboli. We examined carefully the coast of Asia Minor, where the Taurus touches the sea, in the hope of finding a practicable valley for a future line through that country, and then proceeded to examine the coast for a good harbour. That of Alexandretta did not promise to answer, on account of its mountains, impassable for a railway; and the ancient harbour of Seleucia was also condemned, as not affording sufficient depth of water. But on the southern side of the Bay of Antioch a spot was selected by Sir John Macneill, admirably adapted to form a safe and commodious harbour of refuge. It will be capable of receiving second-rate line-of-battle ships, and will be as good as, or superior to, the harbour of Kingstown. The Turkish Government has engaged to bear the whole expense of the construction of this harbour, estimated at from 250,000*l.* to 300,000*l.*, and to carry out the works by English engineers simultaneously with those of the railway. The spot chosen is three miles south of the river Orontes, and six miles east of the old harbour of Seleucia. The harbour is proposed to be formed by running out a breakwater on the south side of the small natural harbour, which is a perfectly safe and secure landing-place for boats, with good holding ground, so that vessels taking out materials for the construction of the railway could anchor in safety off this landing-place. Stone of the finest quality abounds close to the point where the breakwater will abut on the land, and can be quarried also to any extent in the immediate neighbourhood. It is proposed to construct about 1,900 feet of the breakwater in the first instance, and to complete each portion as the work advances, so as to afford shelter and landing wharfs within the first year or eighteen months, which will enable vessels drawing twenty feet of water to lie in safety during the winter months, if required to do so, and within six months from the commencement of the work a landing-place can be formed, and perfect shelter for boats, at an expense of 20,000*l.* The harbour, when completed, will be capable of giving shelter to thirty or thirty-five vessels. The average depth of water will be from twenty to forty feet. I have given these details in connexion with the proposed harbour, because I think you will agree with me that, irrespective of the route to India, a good harbour of refuge on the coast of Syria would of itself be of the utmost value and importance to all commercial nations. Our survey of the country and the subsequent trial sections of the engineers extended from the coast to within sight of the Euphrates, taking in the towns of Antioch and Aleppo. Beyond the latter, all engineering difficulties cease, the country presenting a hard dry level surface (called in Arabic *Ka Jalide*—flat and hard), most admirably adapted for a railway. And even between the Mediterranean and Aleppo the difficulties are such as would be considered small in this country. There will not be a single tunnel, and only two cuttings of any consequence. Two chain-bridges over the Orontes will be necessary; but neither do these present any obstacle to the engineering science of the present day. The average expenses for the first part of this line (which will be the most expensive portion of the whole) is estimated at 13,464*l.* per mile, and another portion, which also presents some difficulties, is 12,754*l.* per mile. But as portions beyond Aleppo fall very considerably below this average, some of them being estimated at only 4,693*l.* per mile, the average expense for the whole of this first section of the line from the harbour to the Euphrates has been calculated by Sir J. Macneill at 8,858*l.* per mile. On my way to Constantinople the terms of the concession were finally settled; but, owing to opposition from rival parties, they were less favourable than had been previously arranged. The Turkish Government gave a guarantee of six per cent. on the capital expended by the company, requiring from them a deposit of 28,000*l.* in exchange for the firman, with the condition that the works must be commenced within one year. The expense of the whole line is estimated at 8,000,000*l.*, but assistance from our Government on the first section only, or on a sum of 1,400,000*l.*, since the



railway, after reaching Aleppo, will require no assistance whatever. The assistance asked—the whole amount of which is only 100,000*l.*—to supply the interest to the shareholders for three years until the railway shall be in working operation, is more nominal than real, the object being to give confidence to the public, for which the Turkish six per cent. guarantee is not sufficient. I found the Porte thoroughly alive to the great advantages likely to result to Turkey from the establishment of this line. The consolidation of the Sultan's power in distant provinces of his empire, the great extension of commerce to be expected, the centralization of the system of government—these, and many other considerations were strongly felt by the Turks. We found, indeed, the existing commercial returns in Syria most satisfactory. Without taking into account any increase, Aleppo alone and her commerce would suffice to support a railway thus far, and would yield a return of eight per cent. to the shareholders. 1,800 shares were at once taken in Aleppo itself, and a petition was sent to the Sultan in favour of the railway. To the eastward of this city, however, a large additional trade may be expected; indeed, a very extensive trade exists; which would all flow into this railway. We shall have Syria and Mesopotamia on one line, India and Central Africa beyond, with Kurdistan and Persia on one side and Arabia on the other. It is impossible to estimate the amount of traffic and commerce which will arise. It must be very large; it may be beyond what even England has ever seen or imagined—for there is no limit to the productive powers of these countries, provided capital and skill be there to turn to account the vast provision for their realization contained in their noble rivers. The chief products at present are grain (which could be supplied to Europe to any extent), cotton of a very superior quality, which is already cultivated largely, but not yet well cleaned, in the neighbourhood of Mosul, and would be grown much more extensively if any means of transport existed. Mr. Rassam, Her Majesty's Consul at Mosul, tells me that 100,000 camel loads of cotton are now lying there for want of means of transport. Wool, also, copper, sugar, indigo, saltpetre, dyes of various kinds, bitumen, and various other products, are the present ordinary exports of Mesopotamia. Their demand for our goods would be proportionally large. At present the natives of Syria and Mesopotamia receive many of their supplies from Russia, through Trebizond, but their markets would be supplied by Manchester, Sheffield, Birmingham, &c., if the means of transport were established. It is, indeed, impossible to estimate the changes in European countries by throwing open to them these sources of commerce and openings for colonization. I have dwelt at some length on the commercial advantages to be expected from this line—although at this moment even these must yield in importance to the all-engrossing desire for more rapid communication with India. This and telegraphic wires in operation would be worth anything to England at this moment. The means of rapid and certain transmission of mails and passengers to India ought alone to decide the public and Government in favour of this line. For the transport of troops and stores it would be of inestimable importance. Few political objects, perhaps, could be of more consequence to England than those which will be so thoroughly accomplished by this line. I allude chiefly to the consolidation and to the commercial and political resurrection of Turkey. We have expended lavishly money and lives ostensibly for this object, but without any benefit to ourselves, and without imparting any real strength to Turkey. By this line, however, we secure the defence of her frontier against Persia and Russia. History proves to you what a powerful influence has belonged at all times to the possession of the Valley of the Euphrates. A friend who is intimately acquainted with the East writes to me:—"I was in those countries during the Russian war, and frequently thought how different the position of that power would have been if their army had been moved in the direction of the Euphrates valley, instead of invading the Principalities and European Turkey. Europe would have remained in a state of apathy, and public opinion, out of England at any rate, would

have been for them. Had they reached Mosul under these circumstances they would have been in a country whose resources surpass almost any other in the world." This, or a very similar plan, was proposed to the Emperor Nicholas by one of his generals during the war of 1828-29. We may be thankful that it was not adopted. Dr. Sprenger says—"If properly managed the Valley of the Tigris would soon be sufficiently prosperous to form the basis of a campaign to the south-east, or the same route that was taken by the Arabs when they conquered the Valley of the Indus in the seventh century of our era. The Straits of Ormuz are so narrow that the Persian Gulf might at any time be converted into a lake belonging to the power which may be in possession of Bussorah. Europe is no longer the world, and the true key to the possession of the world is the Valley of the Tigris, and not Constantinople, as it was believed in ancient times." These are a few, and still but a few of the great results likely to arise from the establishment of this line of communication. The subject is too vast to be embraced in a paper such as this; but I trust I have said enough to give you an interest in the subject: and I may add to all its practical advantages, that to men of science, to the geologist, the naturalist, the ethnologist, the archaeologist, and many more, new fields of interest and investigation will be opened up, with which Europe has at present but slight acquaintance. The principal objection with which my views on the importance of the Euphrates route are generally met is dread of the Arabs. I think, myself, that this difficulty will be easily overcome by judicious management and a little foresight. They are a very singular people, uniting the extremes of good and evil in their characters. I have lived among them for many years, and have experienced both from them, the good and evil—the greatest fidelity and truthfulness in most instances; treachery and dishonesty in some others. I could tell you many anecdotes in illustration of this if time permitted. Our chief difficulties with them would arise from their ignorance, the divided and sometimes hostile state of their tribes, and their blood feuds. But I know, from experience, that by moderation, tact, and truthfulness on our parts, these may be overcome. During the Euphrates Expedition we never lost a single man by the Arabs. They carried large stores of muskets, powder, ammunition, and sums of money amounting to 6,000*l.* and 7,000*l.* for us, attended by only one individual of our party; and in no one instance was there any loss to us. These undertakings were usually paid in advance, and if the Arabs were prevented from fulfilling their engagements, the money paid was scrupulously returned to us. They are, indeed, as much alive to their own interests as other nations, and will soon appreciate the advantages which they will derive from the railroad by regular employment of themselves and their camels, and increased trade. If, however, they should show hostility, contrary to all expectation, such arrangements have been made with the Sultan's Government as will meet even this difficulty. It must be remembered also that a body of workmen such as we must employ, amounting to 10,000 or 12,000, are already a considerably defensive element, and we should also recollect that Ibrahim Pacha kept the Arabs under perfect control. In addition, however, to my own opinion, I will read to you that of a friend, Dr. Alois Sprenger, the first orientalist of the day, who has resided for many years among them. His description of the Arabs is too good to be omitted. He says,—"Some time back I received a letter from Mr. Porter, at Damascus, expressing great uneasiness on account of the Bedouins; but nothing can be more unfounded than this cause of alarm, for the Bedouins are the most manageable people in the world if judiciously treated. But even if matters were to be mismanaged, as they have been at Aden, and the Bedouins should offer every opposition in their power, it would be of little avail. It would soon be found that, notwithstanding their personal bravery and cunning, they are very much like wild beasts. No one has ever heard of an army of tigers; and so it would be with the Bedouins, who have never been united. Like wild beasts, they would show desperate courage when irritated,

but such ferocity can do nothing against discipline and calm resistance. As a proof of this, I may mention that there are some Kurdish villages below Mardin, in the midst of the Desert; which, small as they are, defy all the power of the Shammar tribe, and successfully refuse to be tamed. Whoever possesses the Euphrates has the Bedouins in his pocket; for this cuts them off, and they cannot do without its water and other resources." Those who really entertain fear of the Arabs forget that a railway running through a fertile country is a vein of life. In less than two years we should see towns and villages springing up on both sides of the line, and thousands of these nomads settled in them. But it is on the gradual construction of a railway, and the time it must require, that I chiefly rest my expectation of ultimate and immediate and complete success with the Arabs. The impediments thrown in the way of the Euphrates Expedition by the Pacha of Egypt, in 1835, and the delay which was the result, really assisted our operations, by giving more employment to the Arabs, and increasing our intercourse with them. This will be the case with the railway. As far as Aleppo the Arabs cannot offer any impediment; but in any case, long before it reaches that city, they will feel the advantages of more employment, and will be prepared to further instead of impede the works. Viewing things in this light, and looking to the gradual operation of time to establish our influence among this people, you will readily understand that I have not thought the time arrived for laying down isolated electric wires through their country with any prospect of security. I do not think it necessary to wait for the completion of the railway to accomplish this; but I do think that it would be prudent, and even necessary, to make some of the railway preparations, such as sectional levels, so as to have some kind of influence in the country before laying down telegraphic wires. I, however, thought it right so far to fall in with the views of others as to open negotiations at Constantinople on this subject, and I also arranged with Mr. Barker, Her Majesty's Vice-Consul at Aleppo, who has passed his life in that country, that he should, if required, go among the Arabs to make preliminary arrangements for the establishment of the telegraph, by opening in the first instance the line of Tartar posts, which would at once give us a weekly and speedy communication between England and India. This line existed for many years in Lord Wellesley's time, passing from Constantinople to Aleppo, and thence by Diarbekir to Bussorah, from whence mails were conveyed with great regularity by a fast schooner to Bombay. Another post road is also available from Bagdad by Mosul and Diarbekir to Constantinople. That by Aleppo would ultimately have the advantage, in consequence of the proposed railway; but for immediate use at this critical moment, we might run some little risk by using that by Diarbekir, which, with the assistance of a qualified person living among the Arabs, would smooth the way for laying down electric wires. Sir John Macneill was of opinion that if a judicious commissioner were sent to reside among the Arabs—a man thoroughly acquainted with the people and their language—it would secure the interests of Great Britain; and if this were desirable in his time, it is imperative now. With regard to our telegraphic communication with India, two companies have been formed for this purpose. The one proposes a line along the Red Sea to Kurrachee; the other along the Valley of the Euphrates to the same port. Each appears to be quite practicable, and I should like to see both in operation. As in the case of the overland communication, England requires the resources of a second line in case of accidents to either; and, irrespectively of this consideration, it is clear there would be ample employment for both. I should like, therefore, to find Government prepared to further and encourage both. To effect this a submarine cable should be laid down from Kurrachee to Ras-el-Had, or some other place near the entrance of the Persian Gulf. Supposing this to be done for the companies, they might then carry their lines to England—one by way of Suez and the other by the Persian Gulf, and as the Atlantic cable might be purchased for this purpose, both might occur to be

completed very speedily. The Red Sea line, by following Arabia, at a short distance from the coast, would encounter depths varying from 20 to 100 fathoms nearly the whole way to Suez; coral rocks are only occasionally met with, and we should have the advantage of knowing where an accident might occur, and could prepare the means in consequence of recovering and repairing the broken pieces of the cable. So that the completion of the line from Ras-el-Had to Suez does not seem to offer any practical difficulty. For the other line, there is a choice of two routes, across Asia Minor from Constantinople, as far as Aleppo by one line, and as far as Diarbekir by the other; no difficulties whatever exist, but beyond these places the Arabs are to be taken into account, but this is only for a limited distance. The line of the railway would ultimately be the preferable one, but for immediate operation the other might be somewhat quicker. The work might, therefore, be commenced simultaneously at each extremity. A submarine cable could be laid down from Ras-el-Had to Kurnah, and from the latter place to Bagdad, along the bed of the Tigris; and again between Constantinople and Diarbekir, beginning at several places at once in each part of these lines. The middle part only would be wanting from Diarbekir to Bagdad, and this might be completed by a line of Tartars, pending the definitive arrangements to be entered into with the Arabs by the Commissioner. If the Government should not be inclined to lay down the cable from Kurrachee to Ras-el-Had for the companies, these, having a promise of subsidization from Government on the completion of one or both lines, may very well undertake this part of the expense jointly, and thus we should very soon be in possession of two lines of electric wires to India. The principal points are now before you, both as regards the railway and electric telegraph. Each individual must form his own opinion as to the desirability and practicability of both undertakings. I assume the affirmative in both cases; and I am convinced that a very little of our usual energy will complete both—the electric wires at once and the railway at no distant period. The railway will be carried from the Mediterranean to the Persian Gulf, either by means of British skill and capital, or by the French, who are still more anxious than ourselves to undertake the task. Lord Palmerston appears, in some measure, to have adopted one part of the French plan, and seems to advocate a line through Asia Minor, more northward, so as to come in towards the head of the Euphrates. Unlimited funds might, doubtless, accomplish this; but my local knowledge gives me the firm belief that the Taurus can only be passed, without an absolutely ruinous expense, in the direction of Adana and the Orontes. Since my arrival in Dublin a letter has reached me from Paris, saying that, with the advantages of my presence and that of Sir John Macneil in that city, there would be little difficulty in raising 30,000,000 of francs to commence the work, under a joint English and French direction. I met with great difficulties at Constantinople, in consequence of the opposition of the French, who have long seen the importance of the Valley of the Euphrates. They seem to know and feel, like Dr. Sprenger, that its possessor holds the key of the Eastern world. It is, in fact, far richer and more valuable than Egypt; and England, therefore, has now at her feet the opportunity of acquiring the means of greatly increasing her commerce, of consolidating Turkey, and of securing our Indian territory both from internal and external dangers. The proposed railway would be the means of repaying to the East, with tenfold interest, that knowledge and those blessings which came to us originally from thence. It will vastly increase our power, by the speed with which troops may be sent to India, to Persia, and to Central Asia, and it will bring into train military, political, and commercial advantages; and may I not add—it will extend the greatest of all blessings, by giving Christianity to millions and millions of the benighted peoples.

“On the Isthmus of Suez,” by Dr. T. HODGKIN, communicated by Dr. Norton Shaw.—Having visited Egypt at a time when the proposal to unite the Mediterranean and Red Seas by cutting a canal

through the Isthmus of Suez was exciting much attention, it was impossible for me not to take a lively interest in the question, although I had no personal interest to bias my judgment on either side. I understood that the French were for the proposed canal, and the English, for the most part, opposed to it; but I could discover no reason for the question assuming this national character, beyond the fact that, more than twenty years ago, when an English engineer had furnished the most practical and ocular demonstration that a railroad might easily and advantageously be constructed between Alexandria, Cairo, and Suez, the French interfered and declared that they would not sanction the execution of such a road, and that this expression of will on their part had been fully able to delay the commencement of the work for many years, to the detriment of Egypt, and to the serious inconvenience of commerce. I could perceive no reason which should induce England to retaliate this opposition of France under a different dynasty. I listened attentively to the arguments which were adduced, and I think I saw enough both of the Mediterranean shore and the African Desert to permit me, with the aid of the practical information which I received, to arrive at a tolerably decided conclusion. I went by the railway from Alexandria to Cairo, in the short space of three hours and three quarters, including a good half hour spent in crossing the Nile in a steamboat. I likewise performed the journey from Cairo, about half way across the Desert, towards Suez, and back again, as an easy morning's ride, over that portion of the railroad which had then been completed. It was obvious, from the character of the country, that the railroad was of comparatively easy and cheap construction, and I was assured that the remainder of the line presented no more formidable obstacles. It was therefore very evident that this route between the two seas will furnish the greatest facilities of transport both to natives and Europeans, and on terms sufficiently moderate to admit of the agricultural peasantry not only travelling by it themselves, but also of conveying their goods and beasts of burden. To English passengers, whether going to or returning from India, the present railroad offers a most convenient and expeditious mode of transit. These facilities will be materially increased when the railroad is continued to Suez, where the energy of the Viceroy is accelerating the arrangements for the accommodation of passengers and merchandise. To many who may regard mere ease and despatch as of the chief importance, such a means of transport must be highly valuable; but when it is remembered that a large number of travellers must be solicitous to take advantage of their proximity to the many interesting and stupendous works of ancient Art which Egypt presents, and who would deplore being in sight of Alexandria, Damietta, and Suez, without drinking of the Nile and visiting the Pyramids, it can scarcely be imagined that a *com* which must exclude these objects can have the preference. On the other hand, it is urged that a ship-canal across the isthmus must economize time and labour, by enabling passengers and merchandise from any European port to proceed at once to Eastern Africa, India, China, and Australia, without the detention and expense of land-carriage and re-shipment. These objects are represented as being of so great importance to the all-engrossing interest of commerce, that if these pre-eminent advantages could be satisfactorily established, all the comforts and interest of the Cairo route would present their attractions in vain. Hence it will be seen that the determination of the question mainly turns upon the cost at which the ship-canal in this part of the world can be formed, and on the current expenses required to maintain it in a condition to be at all times available; for the canal, to answer the total outlay, must be kept sufficiently low for it to serve the interests both of the merchants and of the canal proprietors. I confess that my own convictions strongly preponderate on the negative side; and until this question be decided, it is a great pity to raise a political question which, so far as its influence extends, may disturb the peaceful relations which at present happily exist between the two most advanced and important nations of

Europe. Although the difficulty at one time supposed to exist in the difference of level between the Mediterranean and Red Seas is now no longer urged, there are other physical difficulties which are of at least equal importance. The canal must not only be made, but must also be maintained in a serviceable condition. Now, it is well-known that on the Mediterranean side the sea is not only shallow and sandy, but that its depth is subject to constant variation from the moving character of the sand banks. It might almost be presumed, *a priori*, that the same causes which prevent any of the mouths of the Nile from serving as an available ingress or egress for vessels navigating the Nile, would produce and maintain an effectual obstacle to vessels passing in either direction between the Mediterranean Sea and an artificial canal. I had an opportunity of witnessing a strong confirmation of this inference in proceeding from Alexandria to Jaffa. Although we kept out at sea to the distance of some miles, the captain of the steamboat, which was a much smaller vessel than would be required for Indian or Australian commerce, thought it needful, in broad daylight, to be frequently using the sounding-line as a security against stranding his vessel. The force of this objection is so far admitted by the advocates of the canal as to induce them to allow that it will be necessary to construct piers advancing some miles into the sea, and that at their mouth, and in the channel between them, it will be requisite to keep dredging vessels constantly employed to preserve a practicable passage. The inevitable expense of such works must be fatal to the project of a transit from one sea to the other, even if the canal already existed or could be made for a trifling expense. This, however, is so far from being the case, that the construction of the canal itself is known to be attended with immense difficulties, and its projectors are now announcing a probable outlay amounting to eight or ten times the sum for which they originally declared that the canal was to be made. It will, perhaps, be asked in what these difficulties consist? The general facts may be safely stated to be—first, a certain amount of elevated land to be cut through; secondly, land considerably lower than either sea, where very substantial embankments must be thrown up to prevent the neighbouring country from being submerged. Throughout this tract, and probably along the greater portion of the line, a very careful and expensive process of puddling will be absolutely necessary to enable the canal to hold water. Is there the least chance of an amount of commercial transit by this expensive route, sufficient to pay anything like a remunerative interest on so large an expenditure as these operations must require? But if such an interest cannot be relied upon with reasonable confidence, it would seem to be inexcusable folly to commence the work. To this it may be replied, the Egyptian Government will readily supply the deficiency for the sake of the glory of having executed so great a work for the good of the world, as well as for its own advantage. The French advocates of the project may, doubtless, from personal knowledge, be much better able to conjecture what the Viceroy may be persuaded to do, but I cannot bring myself to believe that his real friends, if they have maturely studied the subject, will either encourage or sanction his taking the step, or that his own keen perception and practical knowledge will permit him to be led astray by the plausible arguments of those who, if not from interested motives, from mistaken ideas respecting the merit and glory of the undertaking, may be disposed to press it upon him. Were the necessary capital to be at once obtained, I believe that a very serious obstacle would present itself at the outset in the difficulty of bringing to the field of labour anything like an adequate number of efficient hands, as well as in the expense, trouble, and uncertainty of supplying them with all the necessities of life when brought there. The construction of the canal between the Nile and Alexandria incurred the sacrifice of many thousand lives, besides the outlay of enormous sums of money. But the canal was made through a populous, as well as a notoriously fertile district—labourers and provisions were at hand, and supplies of both could

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readily be brought down the Nile to meet the demand which the extraordinary consumption and distribution occasioned. It is true that a railroad has been easily made across a desert tract between Cairo and Suez; but in this case the labour commenced in a well-provided district; and the railroad as it advanced afforded facility for the conveyance of the labourers, and of their provisions also, including their daily supply of water. In the formation of the proposed canal the like difficulties are far more considerable, and none of these counteracting advantages are offered. As respects Egypt, the effect of the canal, were it successfully completed, must be decidedly injurious. The large and constantly-increasing transit, which is contributing so much to the wealth and improvement of Egypt and the Egyptians, would be diverted to the new line, on which it would confer no benefits, seeing that the ships would traverse the canal without any necessary communication with either shore, except where the locks would require them to pay dues to the canal company's agents. The tract through which the canal passes would remain, as it ever has been, a dreary waste. The course of the canal is too far removed from any well-inhabited or productive country to render it probable that any new port would be established upon it, which might hereafter become an attraction to lucrative commerce. Every sincere well-wisher to Egypt, and to the government under which the country is making such remarkable progress, must therefore feel an interest in the eyes of the Viceroy being opened to the evils which he must inevitably bring upon Egypt, should he be induced by the vain hopes excited by the advocates of the canal to commit his councils and resources to the execution of this project. But, perhaps, it may be said, that the completion of the canal will form an effectual and lasting boundary and separation between the Viceroyalty of Egypt and that part of the Turkish dominions more immediately governed by Constantinople. For almost all practical purposes of government the separation is sufficiently complete at present, and I confess I am at a loss to conceive any benefit which could arise either to the Porte or to the Egyptian Government from such an additional separation as the canal could effect.

'On the Relation between the Newly-Discovered Acedian Language and the Indo-European, Semitic, and Egyptian Languages; with Remarks on the Original Values of Certain Semitic Letters, and upon the State of the Greek Alphabet at Different Periods,' by the Rev. Dr. HINCKS.

'On the Sources and Origin of Human Races and their Languages, more especially the Celtic,' by Dr. W. MACDONALD.

## WEDNESDAY.

'On the Influence of the Gulf-Stream on the Climate of Ireland,' by Prof. HENNESSY.—He showed on a large map of the British Isles the isothermal lines, or lines indicating the equal degrees of temperature; and these ran, not horizontally in the direction of the parallels of latitude, as might be expected, but in curves almost concentric, and following very nearly the windings of the coast. These curves were laid down from the results of a long series of observations on the climate and temperature, by Dr. Lloyd, the President of the Association; and one of these results, founded on a series of both day and night observations, was, that the mean temperature of the sea off the west coast of Ireland was four degrees higher than the main temperature of the land. All these facts were easily explained by the phenomenon of the Gulf-Stream, or warm current of water, which, as was well known to navigators, flowed from the Gulf of Mexico in the direction of this country and the north-west coast of Europe. That current of water, heated in the warm regions where it commenced, exercised its influence very sensibly on the atmosphere, raising its temperature, and charging it with vapours, which were known to give out a certain amount of heat. In Dr. Wilde's historical 'Report on the Diseases and Cosmical Phenomena of Ireland,' presented with the Census returns, they read of several extreme changes of temperature having taken place in remote ages in this country; and those might have been caused by the temporary deflexion or deprivation of the Gulf-Stream,

arising from some perturbation in the tropical regions, and leaving this country for the moment in the same position it would be in if no gulf-current existed.

'On the Surnames of the Irish, their Meanings, and various Changes since the Arrival of the English,' by Dr. O'DONOVAN.

Prof. D'ABBADE read some highly instructive and curious remarks on his 'Travels in Abyssinia.'

'On the Identification of one of the Rivers mentioned by Ptolemy, in his Description of Ireland,' by the Rev. Prof. GRAVES.

Dr. GRAVES then proceeded to lay before the Section a brief 'Report of the Progress already made with the Transcription and Translation of the Ancient Laws of Ireland, called the Brehon Laws.'—He referred to the long array of ponderous quarto MSS. volumes on the table before him, as evidence of the amount of work that had been done. The first thing done, after ascertaining all the MSS. of those laws that were to be found in the libraries of Trinity College, the Royal Irish Academy, the British Museum, and the Bodleian Library, was to intrust the work of transcription to Dr. O'Donovan and Mr. Curry. This was commenced in 1853; and at the present time about six thousand quarto pages of manuscript were transcribed, and also some thousands of pages had been translated. The writing had been done in anastatic ink, which enabled them to make several copies,—one great advantage of which was that they compiled a vast glossary of the words used in the laws, with all the quotations to illustrate their meaning, arranged alphabetically. He had to mention, as an extremely curious fact, that Mr. Curry had been enabled, by this glossary, to investigate all the legal terms in the ancient Welsh laws, many of which the Welsh translators had been unable to understand, and were obliged to leave untranslated. These obsolete legal terms of the Welsh Mr. Curry was now able fully to explain. The language of these manuscripts was very ancient, and a great deal of the writing was scarcely legible, hence it was impossible to estimate the amount of labour and of eyesight expended on them. This great work, however, was worth all the labour and trouble thus devoted to it. It was a most important contribution to our history, for nothing better explained the history and manners of a people than their laws and institutions. They throw a light even over the history of other countries. The glossaries which they obtained were of the utmost value for the knowledge of the Celtic languages; and he had no doubt that the Brehon Laws would present to us a picture of the civilization of this country as it existed from twelve to fifteen hundred years ago. How long was it, he might be asked, until this work would be completed? He had already told them what had been done in the last four years, and if it took as much more it would be worth the time; but he was happy to inform them that there was no fear that the work would not be accomplished. At the close of the late session the Government provided ample means for carrying on the work to completion, and he had no doubt that there would also be means supplied for printing it. He regretted to add, that while they had the warm encouragement of the learned of Europe and of England, there was one person who refused to allow them access to a very ancient Brehon law MS., which he possessed.—[Cries of "Name."] He would rather not then mention the name, as he hoped the person would not ultimately persevere in his ungracious refusal.

Mr. FERGUSON read Mr. Hopkins's paper 'On the Gulf-Stream.'

'On the Proposed Enlarged Scale of the Ordnance Survey, considered in its merits with reference to our conventional Land Measures, suggesting decimal subdivisions of the land,' by Mr. P. GALE.

The following papers were handed in and received:—

'On Australian Crania,' by Prof. J. H. CORBETT.

'On the Condition of the Natives of Australia, in a Letter to R. Cull, Esq.,' by the Rev. J. THEBKELD.

'On the Cause of the mild Winter Temperature of the British Islands,' by Mr. T. HOPKINS.

'On the Pre-Incarial Peruvians,' by Mr. W. BOLLAERT.

'On the Principles of the Construction of Maps,' by Mr. W. HUGHES.

## TUESDAY.

## SECTION F.—ECONOMIC SCIENCE AND STATISTICS.

Dr. HANCOCK read a paper, by Mr. Richard H. Walsh, 'On Equitable Villages in America.'—These villages were established on the principle that persons were to sell articles at what they cost without any profit; the sovereignty of every individual; the adaptation of the supply to the demand; and a circulating medium founded on the cost of labour. A paper had been read before the meeting of the Association in Glasgow in which these villages were stated to have produced a successful result. Mr. H. Walsh had, however, corresponded with parties in America and found that they had failed, and that very unsettled notions of family relations prevailed in them. Mr. Walsh considered that the principles upon which they had been founded were unsound and mischievous in practice.

Mr. JOHN LOCKE read a paper 'On the Incumbered Estates Commission,' in which he described the beneficial effects of its jurisdiction in Ireland, and applying the conclusions to the question of facilitating sale and transfer of all real estate, whether incumbered or unincumbered, not only in Ireland, but also in Great Britain. This would have the effect of applying the principles of free trade to land as far as they were capable of being adapted to the circumstances of immovable property.

'On the Money Grants of the British Association,' by Prof. PHILLIPS.

'Sketch of the Rise, Progress, and Present Prospects of Popular Education in Ireland,' by Mr. J. W. KAVANAGH, Head Inspector of National Schools.

'Suggestions of Statistical Inquiry on the Influence of the Constructive Type of Ships on the Economy of Mercantile Transports,' by Mr. C. ATHERTON.

'On the Registration of Births, Deaths, and Marriages in Ireland,' by Mr. A. MOORE.

'On the Apprenticeship System in reference to the Freedom of Labour,' by Mr. NAPIER, of Glasgow.

'On the Prevention of Crime,' by Mr. W. H. JEMISON.

The hour of adjournment having nearly arrived, the following papers were considered as read, namely:—

'Report on the Criminal Statistics of this and certain Foreign Countries,' by Mr. W. M. TARTT.

'On Cottage Gardening and Labourers' Holdings,' by Mr. NIVEN.

'On the Proportion of Marriages at different Ages of the Sexes,' by Mr. S. BROWNE.

'On Agricultural and Manufacturing Industry,' by Prof. J. P. HENNESSY.

'On Deferred Annuities,' by Mr. CADOGAN WILLIAMS.

Mr. NEWMARCH stated with reference to the papers on Comparative Examination, a resolution had been come to expressive of the opinion that in any scheme which might be adopted for applying that principle, the details should include open competition.

## SECTION G.—MECHANICAL SCIENCE.

'Reports on Statistics of Life-Boats,' by Mr. HENDERSON.

Mr. R. MALLETT read a paper 'On the Construction of the Thirty-six Inch Mortars, made by order of Her Majesty's Government.'—The largest shells, with few exceptions, used during and up to the late war, were 13-inch shells, of about 180 or 200 lb. weight, and holding about 9 lb. of powder. The depth to which this shell would sink in compacted earth was about 13 feet, but it was incapable of piercing masonry beyond 18 or 20 inches, except by repeated shots, and was fired at a range of 4,700 yards. It had occurred to him as very desirable that a shell should be thrown at much greater range with greatly increased power of

demolition and penetration; and he came to the conclusion that a shell of less than 3 feet in diameter would not answer the purpose, and he found that such a shell, holding 500 pounds of powder, would become not so much an instrument by which human life would be taken, as a mine or series of mines, transferred into fortifications—piercing compacted earth to a depth of 15 feet, and demolishing solid masonry at many times the distance at which the small shell could do. Mr. Mallett then, at considerable length, explained the difficulties which he had encountered and overcome in the construction of the mortars he had completed, capable of firing the above shells, and the capabilities of the latter. It was necessary that a mortar large enough to project such a shell should be constructed in separate pieces, because so large an instrument could not be forged without sustaining flaws in the difficult process of cooling. In his researches and consideration of the subject, he was greatly indebted to Dr. Harte for the able manner in which, with his profound mathematical abilities, he had aided him. He had also considered the general question of the application of wrought iron to artillery, and came to a conclusion which would show the improvement as regards the money part of the question. From the table before the Section on the board, the value of guns of equal weight was mentioned—in bronze, wrought or cast iron, and German steel. A gun of say one ton in cast iron would cost 14; in bronze, 10½; in steel, 2½; and wrought iron but 15s. A gun of wrought iron would be but one-fifth the weight of a bronze gun, and therefore about four-fifths of its weight was uselessly put upon the horses employed to draw it. Other elements such as wear and tear, and cost of transport also remained to be considered. —Capt. BLAKELEY observed, that after the explanations of Mr. Mallett, it would be unnecessary to spend time in advocating the utility of monster guns. The objection to them so often mentioned was their unwieldiness, but those who had witnessed the applications of Mr. Armstrong of water-power would perceive that they could easily be moved by that means. The difficulty of constructing large guns on account of the greatly increased strain to which they were subjected was also an objection; but it was shown that those difficulties could be overcome. His (Capt. Blakeley's) plan of constructing large guns differed very slightly from that of Mr. Mallett. The interior of the gun was made of cast iron, because of its small cost, and placed on it were rings of wrought iron, at a white heat, hammered together. A nine-pounder constructed on this principle had been tested at Woolwich; and 158 rounds were fired, the gun being loaded to the muzzle, and those who conducted the experiment declared that it was the strongest gun they had ever witnessed. —Mr. FAIRBAIRN had never seen a more perfect piece of workmanship than Mr. Mallett's very ingenious gun, and it only remained to prove, by actual experiment, whether it would succeed. He was of opinion, after much consideration of the subject, that cast iron of the best quality was the most suitable material for the construction of guns. —Mr. RENNIE attributed the circumstance that the Russian guns were enabled to fire two or three thousand proof rounds to the fact that they used superior metal in the construction of their cannon. He was inclined to think that cast iron was better than wrought iron, owing to the great difficulty in the forging of wrought iron, which Mr. Mallett had so clearly pointed out.

—'Improvement in Artillery,' by Capt. BLAKELEY. —The author proposes to strengthen guns with wire or wrought iron so put on that the outer portion shall take as much strain as the inner, not as in cast iron, less in proportion to the square of the distance from the centre. He mentioned the results of some experiments, which showed a great increase of strength compared with cast iron or brass.

—Continuation of Report read in 1853, on the Rise, Progress, and Present Position of Steam Navigation in Hull,' by Mr. J. OLDHAM.

—On the Importance of Regulating the Speed of Marine Engines,' by Mr. T. SILVER.

—On Coal-burning Engines,' by Mr. J. BEATTIE.

—Description of the Boyne Viaduct,' by Mr. J. BARTON.—The author illustrated his observations

by reference to a very beautiful model of the viaduct, which reached nearly across the apartment. The dimensions of the bridge are as follows:—Height above high water, 90 feet; span of centre arch, 250 feet; and of the two side arches, 125 feet each. There were 740 tons of Staffordshire iron used, at a cost of 24½ 10s. per ton. It was stated by Mr. Barton that the principles of mechanical science had been most thoroughly studied in the construction of every portion of the viaduct with reference to the strain which the particular part would be required to bear.

—On Machinery for laying Submarine Telegraph Cables,' by Prof. W. THOMPSON.

—On the Effect of the Resistance of Water to an Extended Cable,' by Mr. A. S. HART.

—On the Submarine Electric Telegraph Cable,' by Mr. A. BALESTRE.

—Plan for diminishing the Risk of Injury to the Atlantic Cable by an Elastic Regulator,' by Mr. C. BROOKE.

WEDNESDAY.

—On the Principle of the Transformation of Structures,' by Prof. RENNIE.

Mr. J. WARD communicated a paper from J. Brackenridge, 'On the Working and Ventilation of Coal Mines.'

—On the laying of Submarine Telegraph Cables,' by Sir J. MURRAY.

—Some Facts on the Flow of Water through Circular Pipes,' by Mr. NEVILLE.

Mr. B. A. MURRAY made some observations 'On Spinning Silks from the Cocoon,' and exhibited a model of the machinery by which the new process was effected, and stated that silk spun in this manner was perfectly smooth and free from knots, and consequently greatly superior to the article produced by the old system; in addition to which a great saving of labour was effected. He had taken out a patent for the invention.

—Mr. J. J. HAYES made some observations 'On the Mode of rendering Peat economically available as a Fuel, and as a Source of Illuminating Gas.'

Mr. MOY read communications 'On Improvements in the Working of Steam-engines,' and 'On the Philosophy of the Wave-line System.'

—'On a New Railway Signal,' by Dr. GRAY.—Dr. Gray said, the new railway-signal had been tested very satisfactorily upon the Midland Great Western Railway. The qualities which it possessed, and which were relied on as establishing its value and efficiency were—First, the signal could be made from the guard to the driver and back again with certainty and rapidity. Secondly, that the guard and driver should be able to communicate with each other by means of a code of signals. Thirdly, that in certain cases the signal apparatus should be self-acting automatic—for instance, if any accident caused the severance of the train, which would prevent any communication between the guard and the driver, the voluntary action of either, that notice of the fact would be conveyed to them by the apparatus itself. Fourthly, that there should be no special skill required in order to manage or make the signal; what he meant by that was that it should not be liable to derangement, and that in case some derangement did occur, the ordinary workmen employed on railway works would be able to set the apparatus right or make a new one. Fifthly, that there should be always a constant indication before the parties in charge of the train that the signal was in working order, so that the guard would not start from the station without knowing that the signal was all right and in reliable condition, and would not fail him upon the journey. The sixth requisite was, that the communication between the carriages should be of such a nature that there would be no serious delay in making up the train of carriages, because of the use of the signal. Dr. Gray entered at some length into the principles and details of the invention, and exhibited a working model, the size of the actual apparatus, and several experiments were then tried, all of which worked most successfully and elicited loud applause. The signals were made through a tube 168 feet in length with the greatest rapidity, and the air was exhausted at one end by an air-pump, but by a simple turning of the cock the effect of this exhaustion was destroyed,

and a red bar or semaphore was thrown across a little box representing the box beside the driver, and a whistle was also made to sound by the same instrumentality.

Lord OTHO FITZGERALD said he was present on the occasion on which this apparatus was tested before the Lord Lieutenant. He was in the Lord Lieutenant's carriage, in which there was a means of communication with the guard and driver. They used the signal three or four times, and it answered perfectly in every way. He then went upon the engine, Mr. Dillon being in the guard's van, and they communicated with each other several times with the greatest rapidity and ease. He afterwards went into the guard's van, where he again tested the apparatus, so that he was competent to speak of the perfect success which had attended the experiment.—The President, Mr. FAIRBAIRN, said, Dr. Gray had obtained a desideratum as far as regarded the communication between the guard and driver of a railway train. It was hardly necessary for him to say that any apparatus by which the danger signal could be effectually given was of the greatest importance as regarded the safety of life and property. He was sorry that time did not permit them to enter into a discussion upon this interesting and important subject; but, indeed, discussion was scarcely necessary, as it was clear from the explanations given by Dr. Gray, and the experiments which they had witnessed, that his very ingenious apparatus would effectually carry out the object for which it was designed.

The last two papers were received and considered as read, namely:—

—'On the Use of Percussion Lights for Preventing Collisions at Sea,' by Capt. LEECH, R.E.

—'On Electro-Magnetic Engine,' by Mr. J. S. BEATTY.

## MISCELLANEA

*The New Philological Society.*—I wish to draw the attention of the members of the above Society to what I have long considered the greatest anomaly existing in our language, though common to its kindred tongues, namely, the insertion of the letter "u" after "q" wherever the latter may occur. Apart from the consideration of the origin of this custom, I cannot see what purpose the vowel serves; and if writers could only be got to agree to discard its use in future, no mean reform in spelling would be effected. In these days of universal printing, any mode of economizing type, space, and labour, should not be despised,—and though for a time the omission of the vowel would look odd, and almost ridiculous, some years hence people would be rather astonished how we could have for ages, practical nation as we are, continued the use of a redundant letter. As the above Society will be supposed to enjoy the support of all literary men, I know of no body more competent to deal with the matter, and hence my desire to bring it under their notice. JOHN DOWLING.

Dublin, Sept. 14.

TO CORRESPONDENTS.—J. W.—J. T.—F. B.—R. C. W.—An Amateur Author—M. M. M.—Verador—E. R. C.—W. P.—A Literary Reader—F. de C.—J. W. B.—received.

\* \* Prof. Thomson, who, at the Meeting of the British Association in Dublin, made some remarks on a paper of M. Soret's, read by him before Section A., writes to us to state that he did not characterize M. Soret's paper as "an admirable résumé of Faraday's discovery," &c.; but that he pointed out that the laws of induction as first given by Faraday and Zenz are well illustrated in the first series of M. Soret's investigations, with a view to definite mechanical relations, which form the subject of the most important part of his communication. The Professor further pointed out, that Mr. Joule had, at various times, from eleven to sixteen years ago, published the same experimental investigations as to the dynamical and thermal effects of electricity as those which are now brought forward by M. Soret; but that he remarked that M. Soret's paper was highly important and interesting as an independent and apparently very well-worked out experimental verification of Mr. Joule's great theory.

We have to acknowledge the receipt of several extended reports of papers read at the Meeting of the British Association; but which reached us at too late a period to be rendered available.



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**BONUS TABLE.**

Showing the Additions made to Policies of 1,000*l.* each.

Date of Insurance.	Amount of Additions to Feb. 1, 1851.	Addition made as on Feb. 1, 1856.	Sum Payable after Death.
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1850..... £232 10 0    £114 5 0    £1638 1 0

1851..... 323 14 0    103 14 0    1486 8 0

1852..... 241 13 0    93 2 0    1324 10 0

1853..... 185 3 0    83 17 0    1274 0 0

1854..... 138 15 0    84 13 0    1213 8 0

1855..... 65 15 0    79 18 0    1145 13 0

1856..... 10 0 0    75 15 0    1065 16 0

1857..... 15 0 0    15 0 0    1015 0 0

And for intermediate years in proportion.

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